SEPTEMBER, 1879.

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THE

# AMERICAN FARMER.

"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." . . . . . *Virg.*

PUBLISHED BY SAML. SANDS & SON, BALTIMORE, MD.

VOL. VIII.—NO. 9.] SEPTEMBER, 1879. [NEW SERIES.

## How to Make Wheat.

*Messrs. Editors American Farmer:*

Ten, twenty, thirty and forty bushels of wheat, may be, and have often been made, on one acre of ground. Why is it that one farmer makes only five bushels of wheat on an acre, while another farmer makes forty? The one has brains and uses them—the other depends on "the mercy of chance."

Benjamin Fitzhugh, of Frederick city, says that the Lawson Brothers, living near Urbana, in Montgomery county, made two years ago fifty-two bushels of wheat per acre on eight-dollar land.

Mr. Philip Ritz, living near Walla-Walla, Washington Territory, informed me that one of his neighbors claims to have made one hundred bushels of prime wheat on an acre. Senator Morton went to see this man and obtained a sample of his wheat. Forty to sixty bushels is often made in Oregon.

But the farmer who expects to make twenty or thirty or forty bushels on an acre of poor land, badly farmed, will be terribly disappointed. To make a good crop of wheat, we must have good land, in good order, sown at the proper time, in the proper way, and properly harvested.

We mix barn-yard or hog-yard manure, or other fertilizers, to make the wheat-plant grow. On poor land, the stalk is too small, too light. If the growth is too luxuriant, the wheat may lodge, which hinders the growth and development of the grain. But when on good land, a small quantity of manure acts finely on a wheat crop, which matures early on manured land.

"When there is no phosphoric acid in the soil, wheat will not grow," says Liebig. There is twenty-six pounds of phosphoric acid in twenty-five bushels of wheat. If the phosphoric acid of a soil has been exhausted by repeated crops, or if that quantity of soluble phosphoric acid cannot be furnished by the soil, twenty-five bus. of wheat cannot be made on that acre. Phosphoric acid is furnished most certainly by bones of animals. It is claimed that it is present in the South Carolina rock also. Our experience is that those who use phosphates make wheat—those that do not use phosphates make little or no wheat.

If we had some means of strengthening the wheat stalk, so that the wheat would stand up, the heads would fill better, the grains would be plumper and more perfect. Liebig says that "soluble silicate of potash imparts strength to the growing crop." It is claimed that soluble silicate of potash exists in the marl of Calvert county, in Maryland, and in some marl from New Jersey.

If the farmer wants to make twenty, thirty, or forty bushels of wheat to the acre, he must have rich land. Land is made rich by barn-yard or hog-yard manure, or by clover. Lime will increase the crop of wheat and of all cereals and grass crops likewise, on all soils, rich and poor. I think land cannot be made rich *without* lime.

The elements of fertility may be in a soil in an insoluble condition; therefore, the soil will be unproductive. The productiveness of a soil is in proportion to the solubility of its fertilizing materials. Liebig says: "Steel wire immersed in nitric acid is not oxidized; steel wire immersed in sulphuric acid is not oxidized; but steel wire immersed in equal parts of nitric and sulphuric acid is rapidly oxidized." The two acids combined have a power which singly they do not possess. Lime, applied to a soil, may decompose one ingredient, and this decomposition may liberate a number of chemical agents, which will give energy to the growth and development of all plants. "A little leaven leaveneth the whole lump."

To make forty or fifty bushels of wheat per acre, the farmer must have rich land, or brains enough to make poor land rich. Wheat ripens earlier on manured land; but too much manure may be injurious, by causing a too luxuriant growth.

But when we have a sufficient growth of stalk we need soluble phosphoric acid to fill the head with nice, plump grains. The surest, cheapest, most reliable mode of securing phosphoric acid to a soil is by the use of finely-ground bones,—bones dissolved in sulphuric

acid. The value of all fertilizers is in proportion to their solubility. The heat of the atmosphere and the moisture will dissolve the raw bone in time for a crop. If there is thirty-seven per cent. of phosphoric acid in one hundred pounds of bones in a soluble condition, one hundred pounds of bones on an acre, regularly distributed, would be more than enough to make twenty-five bushels of wheat. If six hundred pounds per acre were used, and only twenty-five bushels of wheat were made, the residue of the phosphoric acid in the soil would be so much dead capital.

Some of our farmers use one hundred and fifty pounds of finely-ground bones, one bushel of plaster and one bushel of salt, mixed, to an acre, drilled in with the wheat.

Some of our farmers use one hundred and fifty pounds of ground bones, one hundred pounds of Peruvian guano, one bushel of plaster and one bushel of salt per acre, drilled in with the wheat. A first-rate application to poor land.

Some of our farmers use one hundred and fifty pounds of Slingluff's dissolved bones, a bushel of plaster and a bushel of salt to an acre, drilled in with the wheat. Mr. Geo. W. Harris, near Hagerstown, raised this year one thousand bushels of wheat on thirty acres of land. He used 167 pounds of Slingluff's dissolved bone to the acre.

Our farmers, this year, who used phosphates, made good crops of wheat. Those who used no phosphates made none. When Dr. Higgins, our State chemist, said, twenty-five years ago, that our land was in need of phosphates, many of our farmers wondered whether he knew anything about it. Now all our farmers think we ought to use phosphates, and phosphates are generally used. Whether it would be better to use unmixed raw bone, or bone dissolved in sulphuric acid, dried and ground over; or bones, raw or dissolved, mixed with Peruvian guano; are problems to be solved by our agricultural people. One thing is certain: our English cousins found out fifty years ago that if they wanted to double their crops of wheat and turnips they must use bones freely.

*Washington Co., Md.* THOMAS MADDOX.

## Wheat.

### Views of Deer Creek Farmers' Club.

This club met on August 2d, at Mr. John Moores' farm, which the committee of inspection highly commended,—one of its members, Mr. Ball, saying Mr. Moores had done as much as any man he knew to make two blades of grass grow where one grew before. He should be commended for the great improvement he had made in his land. It produces nearly twice as much as it did ten years ago.

The subject for discussion was

**Wheat,**

and we quote the report of the *Æge*:

Mr. Moores said it seemed strange that farmers differed so much about the cultivation of wheat. They differ as to the kind of wheat, the time of sowing, &c. They have been raising it for thousands of years, and still have very little certain knowledge to guide them in producing it. Farmers ought to get on some certain track, and raise large crops of wheat. He had tried harrowing wheat in the spring, and believed the only advantage of it was to thin the wheat when it is too thick. He never saw a heavy crop of wheat where it stood too thickly on the ground.

Mr. Glasgow said he preferred the Fultz wheat and to commence sowing on the 15th of September. The ground should be plowed early, and he does not stop if the ground is dry, provided it crumbles up in plowing. Briars can be killed more effectually by plowing when the ground is dry. Once he stopped plowing because the ground was dry and broke up in large clods. Two or three weeks afterwards he tried it again. No rain had fallen in the meantime, and then the ground broke up well. Where the soil is thin it should be plowed shallow, but he tries to go a little deeper each time. He likes to plow under clover for wheat. You cannot have a good crop otherwise. You are not so certain of having a good set of grass after plowing under clover, but grass seeds take better after stubble. It is not the quantity of seed we sow, but the quality of the ground, that makes good wheat. One bushel and a peck of good seed to the acre on good ground is enough. If the land is thin two bushels will not make good wheat. Mr. Glasgow tries to sow 1½ bushels, and applies 350 lbs. of bone, drilled in with the wheat. He has a field of 18 acres, which made 12 stacks of wheat. Members of the club estimated that he would have 1,000 bushels of wheat from the 18 acres.

Mr. Barnes preferred Fultz wheat. Last year he sowed some before the 20th of September and some as late as the 16th of October. The last was the best. It averaged over 30 bushels to the acre. It was stalk-ground wheat. The corn had 700 lbs. of bone-dust to the acre applied in the spring. Stable manure will make straw, but bone makes the grain plump and heavy.

Mr. Ball thought the Fultz better than anything else we have now, but hoped a better variety might be introduced. The ground for wheat should be well prepared and sown as soon after the 15th of September as possible. He preferred clover sod, but many good farmers prefer sowing wheat after wheat, as the grass sets better in that way. One bushel and a half of seed to the acre is enough, unless the seed has been injured in threshing. Some of the best crops he has ever seen were raised from less than one bushel to the acre.

Mr. Fulford said he liked to have the ground thoroughly prepared. If weedy it should be plowed early. It should be cultivated with a heavy cultivator or drag, so as to kill the weeds. Would sow from the 1st to the 10th of October, the time being regulated somewhat by the season and by the condition of the ground. If the latter is rich, seeding might be put off a little later. Prefers to fertilize in the drill, so as to give the wheat an early start. The catching of grass seed depends upon the quality of the

ground. You cannot expect to get grass seed set on poor ground. He had never seen any benefit from harrowing wheat in the spring. The quantity of seed required depends upon the quality of the ground,—rich land requiring less than poor land, as the wheat tillers out more on rich ground. He had had good success in growing wheat after wheat, the second crop being better than the first. Stable manure is likely to produce too much straw.

James Lee preferred clover sod, plowed pretty deep. He prepares the ground well, and usually sows from 600 to 800 lbs. of bone to the acre. Drills the wheat from the 10th to the 15th of September, sowing about 1½ bushels to the acre. The greatest objection to applying a great quantity of fertilizer on wheat is that the crop is liable to fall down and injure the grass.

Mr. Rogers thought that in raising wheat the first thing necessary is to plow early, let the ground be what it may, stubble or clover. Liberal fertilizing is very essential. Fultz wheat is perhaps the best we have now, as it stands the winter well. The experience of the last few years shows that it is necessary to sow later, to avoid the fly. From the 1st to the 10th or 15th October is perhaps safer than to sow earlier; although the time of sowing depends very much upon the kind of fall we have. In sowing fertilizer with the wheat we should have something that is reliable and will act more promptly than bone. Bone should be applied early, and broadcast is the best. In putting on bone with the drill, from the 1st to the 15th of October, the chances are not so good. He rarely drills less than two bushels of seed to the acre, but was inclined to think that less would do better. Plows the ground only once.

Mr. Moores remarked that the first field he sowed last year was Fultz wheat, put in from 20th to 22d of September. The centre was badly cut by the fly. There was a little red wheat mixed with the Fultz. Some spots were almost entirely cut down by the fly, and the only stalks left standing were red wheat. Therefore he believed the red wheat would stand the fly better than the Fultz.

Mr. Webster said the proper time to sow wheat was not sooner than from the 25th of September to the middle of October. The sooner the land is plowed the more certain is the crop. Would keep the ground stirred with a drag to keep the weeds down. It has been his experience that it will not do to sow wheat early in this section. He thought one bushel and one peck of good seed, on good ground, would produce as much as two bushels of seed. It should be put in properly with the drill. The crop is certain if you can turn down a clover sod for it. If the ground is properly prepared and fertilized, you are just as sure with stalk ground or oat stubble, or even wheat after wheat. The seed should be good and of the best variety. The Fultz is the best here, because it ripens early, and is thus more apt to escape the rust. It is hardy and stands the winter well. Although it does not command the highest price you make it up in the quantity you can raise. If forced to sow very late would not use raw bone, but fine bone or some good phosphate.

Mr. Wilson said that red wheat produced a little more flour to the bushel, and better flour than Fultz. The latter has improved very much in the last few years.

Juege Watters remarked that the matter of wheat-growing was a mystery. Our fathers talked about crops of 30 to 40 bushels raised years ago. Then we know that from 25 years ago up to five years ago 8 to 10 bushels were thought a good crop. So he was inclined to believe that there was a deficiency in the ground which must be supplied te raise a good crop. That theory was knocked in the head by the experience of the last few years. He did not know whether fertilizers had restored fertility or not, but was inclined to think the seasons have had much to do with it. During the last 15 or 20 years everybody sowed early and the fly ate up all the wheat. It came to be generally concluded that early sowing produced fly. Farmers therefore got to sowing later, and the crops increased. If none of us sowed too early he did not think we would have any fly. The last of September is early enough to sow. The ground should be plowed early so as to make it compact. He would prefer a clover sod, but that would be determined by convenience. We have corn ground broken up and left without grass and must do something to get it in grass. Until the last few years the main object in sowing wheat seemed to be to get the ground in grass. But if we can raise good crops of wheat we should give it more attention. Judge Watters said he would not use raw bone on wheat, but dissolved bone, which acts quicker. A farmer runs the risk of paying money for nothing in buying manufactured fertilizers. If bone is ground very fine it will have good effect. Manures cannot make ground rich by mixing them with the soil. They must be incorporated with it chemically, so as to be absorbed by plants.

Mr. Janney said he puts corn ground in wheat and clover, then again in wheat and sets in grass. Clover is best for wheat. If only for wheat he would use dissolved bone, and next to that fine bone. If he wanted grass afterwards fine bone would do the most good. The theory has been advanced in some parts of the State that fertilizers mixed with acid produced sorrel. He did not know how true the theory is. Mr. Janney said he sows 1½ bushels to the acre and not before the 25th of September. Likes to get his crop in by the 15th of October.

Mr. Lochary said he was not very successful in raising wheat, and for that reason had little to say. Last year he had over 20 bushels to the acre, on stalk ground. One great help to raising wheat, the last few years, he thought, was the practice of drilling fertilizers in with the wheat.

Mr. Munnikhuysen advocated plowing early; roll the ground, and sow the bone—no matter what kind, so it is good. Leave the bone as near the surface as possible, so as to let it have the action of the sun, air and water. He did not regard phosphate as good on our land; on dry sandy land it will do better than bone. On our land bone dust is the proper thing to use. It should be put on pretty heavy, as soon as the land is plowed. Some should be drilled in also

with the wheat. He preferred Fultz wheat and thought farmers all sowed too early. Fly as a general thing attacks the Fultz more than any other kind of wheat. He regarded the rust as a greater enemy of wheat than the fly. A great deal of fly-struck wheat is pretty well filled. The Fultz can be sowed later and ripens earlier than any other, and thereby avoids both the fly and rust.

S. B. Silver favored early plowing as it gives land time to settle and become solid. Wheat should not be put in deep, but should be thoroughly covered. The Fultz wheat, he said, stands up well and yields more than the Red. He had sowed corn ground in wheat and clover; pastured the clover, let it lay one year and then put it in wheat. The clover took well.

Mr. Thomas A. Hays, in reply to a question by Mr. Silver, gave his experience in plowing down green crops. On the 25th of July, 1877, he plowed 20 acres. On one-third he drilled in cow peas, one bushel to the acre; on one-third he sowed 1½ bushels rye to the acre, and on the remainder one bushel of buckwheat to the acre. It was a very dry season, but the buckwheat grew splendidly, the peas very little and the rye worse. Plowed all down from the 10th to 15th of September for wheat. There was a marked difference in its favor over sod ground adjoining, and where the buckwheat had stood the wheat was the best. The difference in favor of the buckwheat could be seen this year in the grass. Mr. Hays continued, saying that he preferred Fultz wheat for everything except for bread, as it gets dry too soon. He likes to have a few acres of Red wheat for family use. From what he had learned, a clover sod is the surest hit for a good crop of wheat. Likes to plow early and let it lay awhile. Would work the ground up deeply and thoroughly before seeding. Would not plow but cultivate stalk ground for wheat. If possible would sow or drill in the fertilizer about six weeks before planting, thereby giving it a chance to decompose and become incorporated with the soil. Would also drill in with the wheat a few hundred pounds. Likes to sow from 20th September to 10th October, and thought farmers more likely to have drawbacks from late than from early sowing. On good ground would drill in 1½ bushels and on poor ground 1¾ to 2 bushels per acre. In sowing late we should always sow more than when we sow early. Generally uses fine bone. Has used vitriolized and mill bone with other ingredients to advantage. It is considerable work, but you know what you have then. Had better wheat last year from fine bone and a little kainit than from dissolved bone.

Mr. Allen said he had no difficulty in raising plenty of straw, but it will not fill as it should. He prefers the ground compact, and the general view was that from the 25th of September to the 10th of October is the proper time to plant. The best crops seem to have been made by drilling in the fertilizer with the wheat. He would like to find some way to made the wheat stand up. If he could do that he was satisfied he could raise large crops. His idea was that it should be planted upon a clover sod. A statement had been made without his authority that he had raised 50 bushels to the acre on 17 acres. It was erroneous. But he had straw enough to make more than 50 bushels to the acre, if it had filled properly. As it was it is yielding 30 bushels to the acre. He was inclined to think that pasturing in the spring would make the wheat stand up by strengthening the stalks.

Mr. Webster said he thought it essential to a set of grass to harrow wheat in the spring and roll it, before sowing the grass.

Mr. W. D. Lee preferred good clover sod for wheat, and liked the Fultz better than the old Red. Sows from the 15th September to 20th October. Prefers pure bone drilled in with wheat. In plowing we should turn up some new soil each time. Stalk ground should lay over one year before plowing. That is, should sow clover on wheat, and let it lay one year and put in wheat again.

Mr. Wm. F. Hays said he would be much obliged to Mr. Allen if he would tell him how to raise big straw. Mr. Allen replied that he would plow down heavy clover, rolling the ground after every harrowing to make it compact, and then make it rich with the cheapest thing that would enrich it.

Mr. Moores said he would thoroughly cultivate stalk ground instead of plowing it for wheat. When it is plowed the following fall for wheat again, you bring near the surface a large quantity of thoroughly decomposed manure previously plowed down. This is at once available for the second wheat crop, and insures a good set of grass. He would recommend cutting seed wheat not before it is thoroughly ripe, and all cockle, rye, cheat, &c., should be carefully pulled out before the wheat is cut. Then you will have pure, clean seed wheat. As to the time of sowing, he gave the experience of a successful farmer friend of his, who raised for many years 33½ bushels to the acre, by sowing from the 19th to 22d of September. For a few years he sowed later and the crop fell off.

Mr. Archer said it depended upon what system of farming a man practiced—low, medium or high pressure. If a farmer is poor and can only afford to apply from 200 to 300 lbs. of pure bone to the acre, he should turn down some vegetable matter. If he is rich, he should turn down stubble. He would not advise sowing phosphate. Wheat raised by phosphate can readily be distinguished from that produced by bone dust. The latter is brighter, plumper and better. Fine ground bone is the best fertilizer for wheat.

The club adjourned to meet at Thomas A. Hays's, August 30th. Subject—"Top-dressing; how and when?"

## Cultivating Wheat.

As considerable interest has been manifested by the farming community upon this subject of late, and as I have noticed many articles in our agricultural and other journals, some of which have evidently been written by theorists who have had little or no experience and are calculated to deceive, according to promise and for the information of all interested in wheat culture, I propose in this to give a few facts noted during my experience in seeding and cultivating

three fields, one of clover sod, one wheat stubble, and one corn ground; in all 150 acres, and several others of my neighbors.

How to Sow.—I am aware that opinions differ in regard to this; some advocating *wide* spreading of the seeds in the rows, some narrow, some a wide *space between*, others a narrow, and so on. Now, my own observation is, that both the seed and the space between can be too wide or too narrow for the following reasons:

To cultivate wheat successfully it must be wider between rows than the usual width as sown ordinarily. If every other tube is removed, and the seed is *not* spread in rows, too little ground is occupied by *wheat*, and too much is wasted; beside, if the space between rows is *too wide*, the wheat is more apt to fall, it not having the assistance of the adjoining rows to support it. Probably all have noticed this tendency in the *outside* rows along the strips in corn-ground wheat.

If the seed is spread too wide the plants in the *centre* of the rows do not derive much benefit from cultivation, and the most objectionable feature is the danger of the clover seed not taking in the rows, without which the fertility of no farm can be increased or even kept up, at least in this section of country. Of course, clover and other grass seed has to be sown later (at the last cultivation,) and to obtain a set it is necessary that it should fall upon freshly-pulverized earth.

I have a good set of timothy on a piece of ground sown both immediately before and after the cultivators on the 13th of May, although this is entirely too late to either cultivate wheat or sow grass seed. My seeding points will give any desired width in the rows either 3, 4, 5 or 6 inches, and any width of space between for cultivation from 8 to 11 2-5 inches in an ordinary 8 or 9 tube drill; yet for reasons stated, I would not advise the use of one so narrow as 3 or wide as 6 inches; my choice being either 4 or 5 inches.

When and How to Cultivate.—As in all other things people differ here also; and as I desire in this to give facts rather than fiction, having cultivated some of my wheat once, some twice, some three, some four and some five times, some when the ground was wet, some when in good condition and some when it was too hard and dry, some deep, some not so deep and some only scratched, noting very carefully the result, I think that I ought at least to know something about it.

To cultivate when it is too wet, is time lost and work thrown away. To scratch the top of the ground, my experiments have demonstrated satisfactorily to me to be utter nonsense and will do just about the same good as scratching the top of the ground in a corn field.

As soon as the ground is dry (not hard,) in about the same condition as it should be when harrows are started, the drill should start and be made to *run in as deep* as the team can pull it conveniently, and as soon as gone over turn around and go over it again, tearing up and *pulverizing the ground thoroughly and completely in order to counteract the effects of the fall and spring rains.* This is what the wheat wants and all it wants, and under no circumstances should it be touched after it has jointed. I cultivated wheat as late as the 16th of May, it at that time touching the axle of my cultivators. This, I consider, was an injury rather than a benefit to it. Wherever a horse or mule tramps on wheat *after it has jointed*, the straw is crushed and produces the same kind of head as that eaten by the fly; besides, the cultivators must and do necessarily clip out many stools, which, of course, are that many heads gone.

While the wheat is small and before it begins to joint, it sustains little or no injury, even if trodden upon, or occasionally struck by the cultivators; hence, I say, *too* wide a space between is unnecessary, and is not only a loss of ground, but leaves the wheat with less support and is more apt to fall during after storms.

In short, I would say sow but one bushel, or, at most, not over one bushel and a peck, per acre; spread in the rows not less than 4, nor more than 5 inches wide, and let the space between be not less than 8, nor more than 11 inches. When the *ground dries* in the spring, before the wheat joints, give it two *thorough workings* (scratching won't do,) then sow the grass seed immediately behind the cultivators and do nothing more to it. I notice that cultivation increases the size and improves the quality of the berry, and I am satisfied that more wheat can be grown if sown and cultivated in this way a *dry season* than in any other. I know of no *scientific* reason to better sustain this conclusion than the following, which I quote from an eminent writer of Virginia:

"It is the *soil* that absorbs the vapor of the atmosphere, and when it has been broken deep and thoroughly pulverized, the amount of vapor absorbed during night is very considerable and does immense good. For during night the temperature of the soil falls low enough to condense the vapor that penetrates its pores, where it is retained for the benefit of the plant. And hence the necessity of a thorough cultivation of the soil to counteract the effects of drought."

If, however, the spring should be *wet*, I believe as much can be raised if sown with eight or nine of my No. 3 or 4 points, without cultivation. In either case, actual tests, under my own supervision, have proven conclusively that the yield can be increased at least five bushels per acre over the *old-style way of drilling*, as it requires but a moment's reflection on the part of any thinking farmer to realize that to sow the usual amount of seed sown upon an acre of ground, in eight or nine little rows, measuring a *scant inch in width*, giving but *eight or nine inches of wheat surface* to the drill breadth, with fifty-six or sixty-three inches of space between rows unoccupied cannot compete with *thirty-two or thirty-six inches of wheat surface* and but thirty-two or thirty-six inches intervening; for the simple reason that the plants being *wider apart*, derive more nourishment from the soil, *have more room to stool*, and are bound to make better heads at harvest.

[We take the above from a circular issued by Mr. John A. Jones, of Mt. Pleasant, Del., whose drill points were advertised lately in the *Farmer*. Mr. J. is an extensive and successful farmer, and the inventor of several useful improvements in agricultural machinery.]

## The Loss in Saving Wheat.

*Messrs. Editors American Farmer:*

I am not at all surprised that the members of the Gunpowder Club should think there was an error either in my calculations or the selection of an average of the crop which I reported to you, and which was published in your July No.

I took it for granted that farmers would cry out *mistake*, but there was none. I *know* I selected a spot which was *under* an average, and after cutting it I threw out three or four short heads, to be certain to come under, rather than exceed, an average. An acre contains 4,840 square yards. That multiplied by 6 ounces gives 29,040 ounces—1,815 lbs.,—which divided by 60 gives 30 15-16 bushels. Eighty-five acres multiplied by 30¼ bushels gives 2,571 bushels. Wheat saved, 1,050; loss, 1,521.

To be certain that I had made no mistake in weighing the sample of wheat, after weighing it on a pair of counter scales I weighed it in a pair of English balances, made to weigh gold, and which are very correct, (using avoirdupois weights,) and it weighed 5¾ ounces, which made the crop 2,516 bushels, and the loss 1,466 bus.; which reduces the loss 55 bushels.

My only object has been to call the attention of farmers to this loss, and request them to make similar experiments themselves next year and report results.

If any one should be so fortunate as to sustain a loss of only 5 per cent. or less, then let him report his mode of saving wheat for the benefit of his brother farmers.

I am no farmer, and have no interest in the matter other than that which all of us should feel in regard to the prosperity of the farming community and of our country. C.

*King George's Co., Va.*

## Our French Letter.

### Crops in France.

*Messrs. Editors American Farmer:*

Continental farmers continue to be in bad humor; prospects are very gloomy, and the good time appears not to be coming. The inclemency of the season has been nothing short of disastrous, and prices will rule high, despite all foreign importations. Unfortunately the agriculturists have but poor yields to benefit by the augmentation. The grain crop will not come up to even a mean average: hence America is expected to make good the deficiency in cereals. Wheat has not well filled this season: the ears are not only dwarfish, but the grain is diminutive, watery and shrivelled. No plump appearance in the case of grain. The average price for the last three years does not indicate a fall; the same, however, cannot be said of other products. Whatever turn the solution of the protection *versus* free-trade question may take, rest assured no duty will be placed on wheat. Among other general ideas connected with European moral economy, complaint is loud at the increasing expenses in farming; but agriculture has made notable progress, and if the cost has become elevated the returns are not the less superior. Cato only anticipated our time when he observed agriculture was an industry, a commercial speculation.

### Taxes and Absenteeism.

In France agriculture suffers from too much local taxation; it has to support imposts that ought to be levied on the general public—say as excise duties. Ask the townsman, and he will indicate from what dues farmers are exempted. An extending rather than a new evil is affecting the agricultural community of France—the absenteeism of proprietors. The latter are becoming more and more addicted to pass their lives in the capital and fashionable summer resorts, rather than on their estates. Agents represent the landlords. In time matters may reach the point that they have attained in Spain, where a landlord has been known never to visit his estate, and has never made the acquaintanceship of a tenant. Perhaps French farmers would be reconciled to the absenteeism if their rents were not doubled or tripled on the expiration of the lease. Land let thirty years ago for fr.15 and 20 the acre can only now be had at fr.40 and 50, and this augmentation is not justified by any ameliorations effected by the proprietor. Many landlords avow the *métayer* system is best suited to their interests and is less wearisome. This system consists in supplying a cultivator with live and dead stock; set him to work the farm, and divide profits *pro rata* to an agreement.

### Saving Grain.

It is only of late years that the French have adopted the system of stooks for corn [wheat] after being cut. Ordinarily it was left on the ground to dry, being turned from time to time, in sheaves or untied. The altered temperature of the climate, where more rainy days are to be expected than sunshine, has changed all this and compelled the adoption of two systems—the Flemish and the Picardy stook, or rather stack. When the corn is cut a quantity equal to five sheaves is bound, as close to the ears as practicable, with a straw rope; the base is opened widely to enable the mass to stand and the air to circulate; the ears are then covered with a cap, formed of a smaller sheaf, tied by a band near the butt, so as to easily permit of a fan-like opening. The Picardy plan is a little stack placed on an elevated portion of the field; two sheaves, small in size, are placed heads leaning against heads; around this upright are ranged other sheaves, the ears inclining from within outwards; when a point is reached it is covered with a fan-sheaf or a hood of ordinary straw. This is becoming a favorite plan for saving clover, lucerne, &c. Neither of these systems is as good as the ordinary stook of a dozen sheaves, five on each side of a furrow, and covered with two as heads. I never could prevail yet upon a French farmer to try it, which is not surprising when the Minister of Agriculture, in a circular just posted broadcast over the country, implores him to try the Flemish or Picardy systems. The same official reminds agriculturists that in point of nutritiveness and commercial value grain is more valuable when cut a little prematurely, and it ripens, when in this stage, best in the sheaf. Isadore Pierre's experiments on wheat and colza have demonstrated the slow migration

of the phosphoric acid and nitrogenous compounds existing in the organs of the plant, a little before complete maturity, to the summits of the floral axes: hence a premature reaping does not prove detrimental to the yield.

**Agriculture in the North of France.**

The most important agricultural region in France is the department of the Nord, of which Lille is the capital. Its show, which has just taken place, is ever an event. Arthur Young, in his Travels, has borne testimony to the richness of French Flanders and to the advanced systems of culture there practiced. It is thus the Nord is at the head of French agriculture; it is the centre of the beet-sugar industry, of colza and flax culture, of dairy farming and stock fattening In 1840 the Nord supported one head of cattle per 5 acres; at present there is one head for every 2½ acres; and were all France capable of this progress the country could boast of three times its number of live stock. The Flemish is the favorite local race of cattle, and next crosses of this breed with Durhams. The Flemish cow has a darkish red hide, occasionally with white spots on the head and flanks; the head is fine and long; the horns small and pointing outwards. They are grazed from April to autumn; in winter they are tied up, fed on hay, roots, pulp and brewers' grains and drinks of crushed beans or cake; the ordinary daily ration is 55 lbs. of pulp, 11 of grains, 4½ of colza cake and 9 of hay. A good cow will yield 25 to 30 quarts of milk daily. The crosses with the Durham fatten more easily; in 3 or 4 months a lean cow in good grazing land becomes fit for the butcher. There is not much sheep farming: the Dishley-Merino is preferred; the meat is in much favor, and the wool is not coarse. As a rule, the farmers in this part of France prefer to give grain flattened, rather than cracked, to stock—or, in other words, not reduce it to meal. Cake and beans, on the contrary, suit best when crushed. A root-cutter was exhibited by a French manufacturer capable of slicing 6 tons per hour; it has twelve blades, and the slices seemed to fall like the sparks from a St. Catherine's wheel.

**French Horses.**

The show has revived the dispute between the comparative merits of the Boulonnais and the Belgian horse. The former as a poster is famous, and made, before railways superseded him, 60 and 75 miles without being unyoked; eat in five minutes a bait, and drew a long and heavy fish-cart to Paris from Boulogne, the shafts of which passed above his ears; he never rested, and trotted up hill and down hill all the same. The objection against this horse has ever been that the limbs were too fine. On the other hand the Belgian horse is accused of being too heavy. But he is destined for a powerful motor for draught: hence, massiveness, united to a pacific temperament, is demanded; above all, patience at starting. The total weight of muscles is proportional to the total weight of the body; the strength of a muscle is in a ratio to its diameter, and these diameters are largest as the form of the animal is massive: hence the mechanical aptitude is higher in bulky than in slender horses.

The beet crop is not absolutely suffering, but some sunshine would not be amiss. The surface of land under beet this year is 10 per cent. greater than last season. The phylloxera continue to have all their own way; the ravages deepen and extend. F. C.

*Paris, July* 17.

## Cutting and Curing Fodder Corn.

The fodder-corn crop is, says the agricultural editor of the *New York World*, one that merits not only a fitting preparation of ground and good culture, but it calls for special care in harvesting and curing for winter use. In this country as yet the perfect curing of fodder corn is a somewhat difficult operation to many farmers French cultivators, who give considerable attention to the crop, are beginning to adopt the ensilage system of preserving fodder, which has but few experimenters in this country. Here old method improvements are being made from season to season.

The difficulty of curing and saving corn in its immature state tempts many into allowing their fodder corn to become too ripe before cutting. Corn, however, is no exception to other forage crops in this respect, but ought to be cut for best results before it is out of bloom. Chemical analysis has shown that fodder deteriorates in two ways by standing in the field, viz: by the lessened proportion of albuminoids and by decreased digestibility. A minor objection to the crops standing until all the ears are formed is that the stalks grow so tall that they are troublesome to handle and are liable to fall and lodge under storms. Futhermore, early-cut fodder is in itself a complete ration rich enough in albuminoids to make good food without mixing with other materials; and last, but by no means least important, the early-cut crop, according to the experience of a host of practical cultivators, causes less exhaustion to the soil. Therefore the advice to cut fodder corn before it is out of bloom.

Corn for fodder should be harvested when it is dry and in fair weather; if possible let it be put in stocks and stand until cured, when it ought to have shelter either in barns, sheds or stacks. As it is somewhat difficult to cure corn fodder—owing to the quantity of water it contains—so that it can be stored in bulk without danger of heating, numerous devices have been applied to assist in the operation. An ingenious plan practiced in some sections consists of driving two crotched sticks into the ground and in the crotches laying a pole, against which the fodder is stacked to cure. The corn is piled on until about fifteen inches thick. The ends are left open for a free circulation of air. When the fodder is quite dry it is bound in bundles and housed or stacked.

Many farmers advocate the following method against the wholesale way of cutting fodder with a reaping-machine and gathering it like hay with rakes: "Cut the stalks with a common light corn-cutter, with the corn-cutter in the right hand and the cut corn under the left arm, and without dropping it on the ground form into erect snug shocks." By this arrangement

it is contended that the fodder will dry well as it stands and may be allowed to remain all winter.

Not a few of our best farmers build some sort of a rack in preference to storing their fodder in a barn, even when they have plenty of space, because they believe it will not dry out and crumble up to the same extent. An Ohio farmer of some twenty years or more experience in the matter at hand, after trying various ways of stacking fodder, prefers the following to all other modes, as none but the butts are exposed to the weather and a larger quantity can be placed close by the feeding place. He puts fifty shocks of one hundred hills each in a stack. A few sticks are placed on the ground to raise up the centre of the stack in order to shed rain from the butts throughout the entire stack. The stack is made of such diameter as to allow the tops of the bundles to lap and thus keep up the centre, a single row of bundles only forming the circle. The finishing of the stack is in form similar to an ordinary 100-hill shock and well tied with a band. If snow or sleet storm occurs, or a very heavy rain, an entire course is immediately removed and set on end until fed.

A rick of any length desired may be constructed by first laying in a spot where water will not stand a few sheaves or bundles lengthwise or the direction the stack is to be made, in order to raise the centre; then lay the sheaves crosswise with the butts out, lapping them sufficiently to keep the centre highest all the while. Build as high as is convenient and finish as you build; top out by laying a few sheaves lengthwise in the middle, over which stand others slanting so as to form a roof. Begin feeding from the end you left off. A fodder stack is not infrequently built, and very sensibly, too, with a column of ventilators running through the centre.

## Beet-Sugar in Europe.

In relation to beet-sugar in Europe, the *American Grocer* says:

The government offered large bounties to the manufacturers, and the industry thrived until the peace of 1815 was established, when the large importation of cane sugar caused a break in prices, which gradually fell off to 7d. This proved a disastrous blow to the growing industry, but under the fostering care of the government it gradually recuperated, and in 1826 the product was 1,000 tons. This growth was steady and large until 1875, when the product had reached the enormous sum of 450,000 tons. The magnitude of this product can be imagined when we take into consideration that the total amount of sugar imported into this country for 1878 was 737,781 tons. The estimated yield of beet-root sugar for 1878 was 475,000 tons, but owing to some causes the saccharine yield of the root was unusually small, and the product was only 451,000. The total yield of beet-root sugar in Europe is estimated at 1,211,000 tons, of which France furnishes 451,000, Germany 290,000, Austria 205,000, Belgium 80,000, Russia 150,000, and other countries 35,000. France and Belgium are the only countries that raise any surplus, the former producing 270,000 to 275,000 tons more than is necessary for home use, and the latter 50,000 tons.

The season for making sugar is only some five or six months, as the roots cannot be kept for a longer time. It is calculated that to be profitably worked a sugar factory must get the product of at least 500 acres, but with the latest improvements in machinery the product of 100 to 150 acres can be worked up profitably. Some of the larger works have houses established in various portions of the country from which they draw their supply, and the juice is extracted from the roots in these houses and carried to the main establishment either through pipes made for that purpose or on portable railways.

# The Dairy.

## Jersey and Guernsey.

### Their Cattle and How they are Kept.

The following very interesting letter from Prof. G. E. Morrow we copy from the *Country Gentleman*:

The Channel Islands are not favorite resorts of Americans who visit Europe. In favorable seasons comparatively large numbers of Englishmen visit them for short holidays, and an increasing proportion of the population, especially in and near the towns, is English and Scotch. But, except the few who go as I did, mainly to see the cattle, Americans, as a rule, do not have the pleasure of seeing these attractive and quaint little islands. Within an hour after reaching St. Heliers I met Rev. Mr. Blodgett, an American, who has been in Jersey since October last, and who told me he had not before met a fellow-countryman; and I found the visit of Messrs. Mackey, Waring and Jackson, last year, so frequently mentioned as to show that it is quite rare to have American visitors. I am glad to have been one of the exceptional ones, and regret that I am not able to give a better account of what I saw.

In many respects these islands are very peculiar. Belonging to Great Britain, and thoroughly loyal, as the inhabitants are, they are not only of French descent, but most of them speak French, which is the official language of both islands. The people practically make their own laws. The acts of the British Parliament only apply to the Channel Islands when they are specially named. The local legislatures, of which the rectors of the churches form a third part, make the laws, which are approved by the queen, who also appoints a lieutenant-governor and one or two other officers. The weights and measures are generally different from either England or France. The Jersey foot, pound and gallon are each unlike those of England. Grain is sold by the "cabots;" land is measured by "vergées." The penny in Guernsey is, and in Jersey recently was, different from the English. The feudal system still prevails, although much modified.

Jersey has telegraphic communication with England and the Continent. It also has two

lines of railroad—one extending three miles, with six stations; the other being nearly six miles long, and with nine stations, including the termini, 22 minutes being required to make the trip from one end to the other. Each island has its old castles,—that of Mont Orgueil in Jersey being very interesting,—and they have very old churches, some dating back to the commencement of the twelfth century.

Jersey has 28,717 acres of land; in 1871 had 56,627 inhabitants, of which a majority of nearly 7,000 were females, and with over 30,000 living in St. Heliers. A little less than 20,000 acres were returned in 1878 as being in cultivation, by 2,400 occupiers of land. Of these, about 8,000 acres were in grass and clover; over 4,000 in potatoes; about 2,750 in wheat; over 1,000 in roots. The live stock in June, 1878, numbered 10,750 head of cattle, 5,605 being cows in milk; 2,195 horses and colts; 375 sheep, and 6,267 pigs of all ages. For the year ending September 30, 1878, 2,932 cows and heifers and 70 bulls were exported, with imports of about 4,000 for beef. The potato export is the largest item.

Guernsey possesses an area of 16,005 acres, with a population in 1871 of 30,593. Alderney has 1,962 acres, and had 2,738 inhabitants in 1871. If I remember aright, the number of cattle exported from Guernsey last year was 570.

The smallness of the divisions of the land corresponds well with the smallness of the islands. There are farms of considerable size; I visited one in Guernsey which contained about 100 acres, but this is very unusual, and in this case the farm was made up of a number of detached fields. Land is counted by "vergées," of which two and one quarter make an acre, and I noticed that a farm of 56 vergées received a first prize in Guernsey, "*pour les grandes fermes*;" and for second-class farms, a first prize was awarded to one of 28 vergées.

The very small fields were among the most noticeable features of the landscape. Very many of them are of less than half an acre. They are usually surrounded by well-built stone walls or thick earth walls—the latter often surmounted with a hedge of thorn, or allowed to grow up with ferns, coarse grass, &c. These are cut and made use of for manure, but while growing they detract something from the well-cultivated appearance of the land. In fact, laborious and costly as the cultivation is, various things prevent it so appearing in any marked degree.

Hand labor is the main reliance. Most of the implements and machinery are rude, although reapers, mowers, tedders, &c., have been introduced to some extent. In a meadow of not more than three acres, I saw a hay tedder and eleven men and women at work at one time. Most of the grass is cut with a short and very broad scythe, to which a heavy straight handle, fully six feet long, is fastened. While some English plows have been introduced, the only ones I saw were of quite venerable appearance and after ancient models. A farmer in Guernsey, who has about 20 acres of land, told me he kept three men employed throughout the year.

As I have said, early potatoes are the great export of the islands. Although "the disease" often appears and causes much loss, the soil generally seems well adapted to potatoes, and the yield is satisfactory. Some of the lighter land especially is very heavily manured. Mr. Le Gallais, of Jersey, told me he sometimes applied a half a ton of guano per acre, in connection with a heavy coating of barn-yard manure. After the potatoes are removed, the land is planted with turnips, or some other root crop. "Late potatoes" are imported from France. The time of shipping the potatoes is about the same as hay harvest, and is the busiest of the year, unless that of gathering the vraie or sea-weed is to be excepted.

Through the courtesy of Mr. E. J. Arnold, the principal cattle-buyer of Jersey, I had the opportunity of riding over a considerable portion of that island in addition to my walks, and I walked over a fair part of Guernsey. Everywhere I was pleased and interested in the roads, which have been well described by Col. Waring—often so narrow that two vehicles cannot pass; very frequently with the view at the side cut off, save at intervals, by high walls or hedges; the road-bed is almost always very good, thanks to the abundant stone, through solid beds of which many of the roads have been cut. This abundance of stone has given opportunity, which has been well improved, of building remarkably solid, often large, farm-houses and other buildings. On farms of ten acres I saw houses larger and apparently more costly than one commonly sees in America on farms of twenty times the size. The little thatched-roofed stables often had wonderfully substantial stone walls.

At the Kilburn show and on the islands I had the opportunity of seeing some of the very finest of the Channel Island cattle, and I also had the opportunity on the islands of seeing some of the poorer specimens. I am not prepared to say I saw either better or worse specimens than are to be found in America, but there was sufficient contrast. If any one rests under the belief that "importation from the islands" is sufficient guarantee of excellence, a visit would change that belief. While all the cattle on the islands may be said to be equally purely bred, some of them are certainly very inferior. Even yet there is far from universal interest in improvement, as some of the practices clearly indicate. Thus, in Guernsey, the common service for a bull is ten pence or a shilling, and I was assured many of the farmers would not pay more even to secure the services of a prize bull. The very general practice of using only young bulls, often overtaxing them, seems to me objectionable in more ways than one.

The agricultural societies in both islands are doing a good work, and were it not for the whims of fashion, there would be good reason to look for steady improvement in each breed. The variation in color, size, and, to some extent, of form, is quite noticeable. I was quite pleased with some of the older cows in each island. Some of them have much white, as some had much black, but gave every indication of being very fine milk-producers. To judge by the cattle shown at Kilburn, one would form an

incorrect opinion as to color. A very considerable proportion of the cattle in Jersey are not solid-colored.

It must be confessed that the treatment of the better class of the cows is not such as to indicate they are considered very hardy. The weather was very wet and cool for the season, but I did not think it such as to make it necessary to put cows in the stable every night, as I found it to be a quite general custom. On the other hand, as a rule, the cattle seemed not to be very highly fed--generally having nothing but grass. In places in Jersey I saw a few heifers grazing without being tethered, but the almost universal rule is to tether the cattle, old and young, as well as the horses, goats and sheep. This plan undoubtedly enables the farmers to keep a much larger number of cattle on a given acreage, and it might also enable them to dispense with their hedges and stone walls almost entirely. The principal disadvantage is the additional labor required. Usually the tether stakes are moved at least four times daily, often six, and it seemed the general practice to lead all the stock to and from the pasture, for gates are often wanting, high and strong as are the walls or hedges about the little fields.

The calves, after having the fresh milk of the dams for two or three weeks, are given the skimmed milk, sweet or sour, with or without the addition of oilcake, and are early tethered on grass. In winter, hay and roots are the principal food, grain of any kind not being much fed. In a few cases I found the cattle in quite high flesh, and in a few they were very thin, but the large majority were simply in good, fair, healthful condition.

As to the comparative merits of the two breeds, I must confess to some modification of my views—or, perhaps, it would be more accurate to say that what I saw at Kilburn and on the island gave me a much more definite idea of the Guernsey cattle than I had before. The cattle of the two islands are quite distinct. Undoubtedly of the same origin, and with many points in common, something has caused very distinct types to prevail. The Guernseys will average at least 20 per cent. larger, are rather coarser, have somewhat larger bones, a large head, very often a plainer rump. The color differs very much—from nearly white to nearly black—but the most common color is a yellowish red, with more or less white. Solid-colored cows are the exception. In Jersey black noses are almost universal. In Guernsey the flesh-colored nose is equally common, and is rather preferred. The skin of the Guernsey seems to me more yellow than that of the Jersey. Some Jerseymen admitted not only a larger flow, but richer milk in the Guernseys, offsetting this by the claim that the Jersey butter was the more solid and firm in warm weather. The Guernseymen claimed richer milk and butter, as well as more color in the latter. One of them said it was useless to exhibit Guernsey butter at English fairs, as it was always pronounced artificially colored. They also claim more readiness to fatten, with a special tendency to "put on fat inside;" larger calves, and much more valuable for veal.

Admitting the unquestionably superior beauty and gracefulness of the Jersey, and heartily admiring them as I do, I quite incline to give the higher rank to the Guernsey as a general dairy cow, and to say that, as a practical farmer, either in the East or West, looking to making money by ordinary dairying, I should prefer a herd of them to a herd of Jerseys.

It is natural that the residents of each island should prefer their own cattle. I heard of a very few Guernsey cows in Jersey; saw two, and very good ones they were, but heard of no Jerseys in the sister island. Strong as their likings are, I give those I met in each island credit for not disparaging the cattle of the other. Neither did I hear any extravagant claims made. Mr. Torode, of Guernsey, the leading buyer, and who has a small but very excellent herd, told me of one cow from whose milk 14 pounds of butter a week was made, but the largest claim he made for his own was 10 pounds a week, a performance which he thought so satisfactory as to give it as a reason for refusing to sell at any price.

One fact I am quite unable to explain: Only a few miles apart, and with daily communication between the islands, butter uniformly sells at a higher price in Guernsey than in Jersey. The difference is sometimes as much as ten cents a pound. The price of butter in Jersey was given me as 13 pence; in Guernsey 18 to 20 pence. I was told of cases of Jersey women going to Guernsey and selling their butter for five pence more than they could get at home. The mode of manufacture is different. In Jersey, the rule is, I was told, to skim the milk at 24 to 36 hours; in Guernsey the practice is to churn cream and milk together, allowing the milk to become well soured, churning say twice a week.

As to prices of cattle, there is much more variation in Jersey, while the average is higher in Guernsey. The first prize Jersey bull at the Royal Show was sold at 160 guineas, the highest price ever made for a Jersey in England. A prize heifer was sold for 100 guineas. On the island I saw heifers valued at 50 guineas. Mr. Arnold purchased several two-year-olds near calving, at prices ranging from 12 to 22 guineas. In Guernsey from 25 to 30 guineas seemed the general price for good heifers, and for the latter sum I was told good specimens could be obtained. For prize animals, or those thought especially fine, higher prices are asked. A young bull was held at 100 guineas.

In each island the cattle are mainly kept in very small herds. Often four or five cows is the stock of a breeder of considerable reputation as a local prize-winner. Mr. Le Gallais, in Jersey, and Rev. Mr. Watson, in Guernsey, have the largest herds—perhaps 50 in each case. Mr. Watson is a purchaser as well as a breeder. As a rule, the bull calves are not reared. The heifers are generally sold when about to calve. The bulls are used very freely as yearlings, and then sold if practicable. In a report of one of the agricultural society shows in Jersey, I find a list of 52 yearlings and but one three-year-old bull shown. The only reason given me for this course was the great trouble and cost of

keeping older bulls, and their liability to become vicious.

In Jersey I found a general strong faith in continued large exportations to America. This does not seem to me well founded. With the large numbers of Jerseys now in America—many of them certainly equal to any to be found on the island—I see little advantage to come from farther importations. American breeders certainly ought to be as skillful as those in the island, and it is quite as probable the cattle bred in America will become better adapted to American tastes and wants as that they will deteriorate. The English demand will doubtless continue, and be sufficient to take all the surplus heifers of the island at fair prices, although there is some preference given at times to English-bred Jerseys over those direct from the island.

### The Darlington Dairy.

The following account condensed from the Bucks County, Pa., *Intelligencer*, of the manner of conducting dairy operations at the Darlington dairy, Delaware Co., Pa., where from 140 to 150 cows are usually kept in milk, will be interesting:

The milk is strained into common tins five or six inches in depth, and set away in the milk-house to raise the cream. It usually remains about thirty-six hours before skimming. When the pan is tilted slightly on one side, and the cream parts readily from the side, it is considered ready to skim. When taken off, the cream is put into large tin pails or cans holding five gallons each, and hoisted on a dumb-waiter to the upper story, where it is placed in the spring water several inches in depth, until churning time. In winter a little sour milk is put into the pans of milk to hasten the rising of the cream. The temperature of the air in the lower room is from fifty-five to sixty degrees, according to the weather. This room is ventilated by flues in the walls and by double-hung windows, but there are no appliances for warming it, as it is not used in the winter. The cream is churned twice a week, on Monday and Thursday evenings. There are two large churns, revolving horizontally, and driven by a sweep power outside. When the cream is put into the churn, a suitable quantity of annatto dissolved in milk is added to produce the desired color, which is nearly that of a good Jersey butter. If the weather is warm, the cream is cooled with ice to a temperature not exceeding fifty degrees. The usual time occupied in churning is an hour and a half. Sometimes in summer the butter becomes soft, as with other dairymen, but generally it is in a very good condition. The cream gathered in three or four days is enough to fill four churns, so that two churnings have to be done in one forenoon, producing from 350 to 375 pounds of butter. The butter, when taken from the churn, is carried to tables in the upper room, where it is worked over. The salt is added at the first working. The butter is not washed, but the buttermilk is extracted by absorbing it in a moist linen cloth, which is frequently wrung out in clean water. It is thus thoroughly worked in masses of ten or twelve pounds each, and is then passed on to the weigher at an adjoining table. This operator forms the butter into a rough cone and transfers it to the moulder on the left. This workman has pound and half pound "prints" of a neat pattern, and turns out the nicely-finished and attractive lumps very rapidly. These are regularly arranged in square zinc trays, several inches in depth, which float on the surface of the cool spring water.

## Live Stock.

### Soundness of Horses.

The most important knowledge required in the examination of horses as to soundness, is undoubtedly the anatomy of the animal. Without this, it is almost impossible for an inexperienced person to arrive at a proper diagnosis of soundness; although a certain proficiency might be attained through practice and observation.

The term "soundness," if considered in its primary sense, could only be applied to very exceptional cases, as nearly all horses are affected with warts, simple windgalls, capped hocks, or other trifling diseases, not perhaps injurious in themselves, but regarded, in connection with circumstances of breed, as blemishes, and constituting the animal unsound. Thus, for example, a case of windgall in a cart horse would not necessarily constitute him unsound; whereas a similar blemish would be condemned in a thoroughbred; the fact being, that this disorder, in the former case, is evidence of his willingness and capacity for hard work, which, if his age be not too far advanced, he is capable of; whereas, in the latter, the perfection of form being a quality affecting his value, such a disorder would necessarily constitute him unsound; therefore, to use the term "soundness," except in a qualified sense, would be incorrect.

Lord Edinborough says: "Any infirmity which renders a horse of less use is unsoundness." Wm. Percivall, however, in speaking on the subject of lameness, asserts that a horse is sound provided he is not actually lame. I certainly do not agree with this opinion. Of course a lame horse is unsound; but it is further true, that any predisposition to lameness is unsoundness likewise; thus, an unnaturally small foot, a high pathological splint or other bony deposit, from which the animal is not lame, but from which he may become lame occasionally, should be regarded as unsoundness.

As to a definite meaning of the term "unsoundness" as generally used in connection with horses, I agree with Prof McEachran, one of the most eminent veterinary surgeons of the continent, when he says: "That any alteration of function is unsoundness if it renders or is liable to render the animal less useful, or decrease its value in any way." Any temporary diseases or injuries are also unsoundness; thus, a nail in the foot, which may in itself be trifling, would yet be regarded as unsoundness at the time of examination, from the fact that as a

result the horse may become permanently lame, consequent on the injury affecting the more delicate organs in the interior of the foot. A slight cough is also unsoundness for the same reason that it may increase or become chronic. In the purchase of stock for railroads, express companies and other large firms employing many horses, it is not advisable to reject animals with slight blemishes, provided the nature of such is proved not to interfere with their usefulness. Such animals would be bought cheaper, and would prove as useful for general work as sounder stock; and, in my opinion, provided they were constitutionally sound, the purchase of such horses would be an advantage on the score of economy.

In the buying of horses, many dread to deal with the regular horse-dealer, on account of his tricks and sharpness; as for instance: laming a horse in a sound foot when he is lame in the other, the object being to make the animal go an even gait; or tying a strap around the neck to prevent roaring; or dosing him with shot to make broken wind (heaves) unnoticeable, etc. It is said that an "honest horse-dealer is honesty written in the dust;" but it must be admitted that much of this is prejudice, there being honest men among them as in all other callings, and the few dollars they make on a horse is well earned, they having more hardship in buying a horse than is generally supposed, being compelled to travel long distances through the country, and taking great trouble in buying to suit the market; a more difficult task than when one purchases for his own use.

The amateur horse-dealer is the one to be cautious of rather than the professional, for the business of the latter demands that, having made his customers, he should retain his patronage; whereas the former has no future interest at stake, but is satisfied to complete the one transaction often at any sacrifice of truth and honesty that he may deem expedient. Nevertheless, it has been well said, that in the purchase of a horse from any one, the buyer needs a hundred eyes, while the seller needs but one.

I may say on the other hand, that a buyer very often expects a horse to be perfect in all respects; he wants him to do this, that, and the other; in fact to do everything; but be sure that a perfect horse in qualities and soundness is scarcely to be found, and would take a long search to discover.

In the examination of a horse for soundness, a starting point being necessary, we begin at the head. First, the *mouth;* observe the teeth for indications of age, exercising due caution to detect the fraud of "bishoping," (changing the marks of the teeth,) and carefully noting any diseased condition. Next, the tongue for injuries, ulceration, etc.; the nostrils for catarrh, or ulceration from glanders. The eyes must be examined in the dark with a candle, and in the sunlight for simple and specific ophthalmia, nebulæ, etc.; next, between the jaws for enlargement of the gland in case of glanders; at the angle of the jaw and neck for enlargement of the thyroid gland, which interferes with breathing when too large; the poll for poll-evil; the ears for warts and lack of power; the jugular vein down the neck as to size and any deformities, a large vein being preferable; the neck for mange; the withers for fistula; the shoulders for atrophy, *i. e.*, wasting of muscles; the anterior part of forearm for weakness or marks of setons, which may have been used in past surgical operations to cure shoulder lameness, which is liable to return again; the knees for enlargement, being careful to detect any abrasions of the skin, which would indicate a habit of stumbling; the internal part of cannon bone for splints; the fetlock for enlargement; the pastern bone for ring-bone; the elbow for capulet; the back of knee for enlargement; the tendons for thickening, and windgall above the fetlock on either side, noticing especially if there be a cicatrix of a small cut, the result of the operation of neurotomy, *i. e.*, "nerving." When any doubts are entertained on this point prick below the fetlock; if insensible to it, he has been operated on. The enlargement of the hollow of the heel indicates navicular diseases. Examine the frog for thrush; the internal part of sole for corns; the foot for contraction, flatness, plummy, seedy toe, sand crack, etc.; the abdomen for rupture; the testicles for hydrocele; the penis for tumors; the scrotum for rupture, noticing the evenness, or imperfections of the quarters, irregularity being a sure indication of some past disease or injury; the tail for tumors and lack of power; the generative organs of a mare for disease; the point of hock for capped hock; the back of hock for curb and thoroughpin; the internal part of hock for bog spavin; the antero-internal part of hock for bone spavin.

Having gone through examination on one side, repeat the same on the other and compare; after which have the horse trotted up and down at good speed, then stop him suddenly, apply your ear to his nostril and notice if he has a sound wind; having trotted to and fro, and past you, to detect lameness or weakness of the extremities, have him back up to detect nervous disorder and string-halt. For all vice and bad habits, as crib-biting, etc., the purchaser must take a guarantee from the seller.

The limits of this article compel me to confine this description of the process of examination to a simple outline. The details of the subject must be left very near to practical experience; but it would well repay the farmer to thoroughly study the subject, or in the buying of stock to avail himself of the experience of others who have studied it, as there is no purchase which is so liable to result in "a bad bargain" as the purchase of a horse.

D. LEMAY, V. S.
152 *Saratoga St., Baltimore.*

## Summer Cattle-Feeding.

With the old adage "Make hay while the sun shines," might be matched "Grow beef before the sun declines." Temperature as a factor in beef growing is not sufficiently studied. The mass of feeders seem to think that grain feeding is superfluous in warm weather, and this is deferred to the cold season, when it takes nearly double the quanity to produce the same result. But our object in writing this is to call attention to the fact that almost all pastures are short at

this season of the year. The flush, sweet grasses of June begin to dry up in July, and are often parched and bare in August. Now is just the time to make the most of grain—to make it produce a greater result in growth and fattening than at any other season.

First, the grass is often quite insufficient to furnish full food for cattle; and half-food is much less than half growth. The rich pasture of May, June and part of July gave the cattle a fine start, and this thrifty condition should not be allowed to decline. Grass is nature's own food for cattle, and, when in the best condition, is thought to be unequaled by any other food; and it is true that steers will put on more weight in a given time on grass than on grain; but when this grass is deficient in quantity and quality, it should be supplemented by other green food, or by grain.

In the great West, where so many cattle are fed, grain is comparatively cheap, and other green food unprovided. To allow cattle to run on a short pasture, without any additional food, during August and a large part of September, is the very worst economy possible. A small grain ration will keep up their growth and fattening; and when the fall grass comes on, they are ready to make the best use of it, and at the end of the grazing season are ready for market, or, if too young, they enter the cold season in such fine condition as to insure a good growth, with the usual grain feeding. Without additional feed in August, on short pasture, steers will scarcely hold their own, whilst with a small allowance of grain they will lay on two to three pounds per day; and this condition of thrift will continue through the fall. It is also to be remembered that the additional weight put on the steers improves the quality of the whole carcass; so that the gain is not merely the number of pounds put on, but the additional value of the whole animal.

Steers may get enough grass in a poor pasture to furnish the food of support, and then the grain fed will all be expended in growth or increased weight. If the steer weighs 1,000 lbs., and gains, by the use of 10 lbs. of corn per day, 150 lbs. in sixty days, it is easy to see that, if this gain is worth 4 cts. per pound, the corn is paid for at 60 cts. per bushel, or at twice the price it usually bears in the best corn regions of the West. But it is quite safe to say that no feeder can afford to let his cattle go on short pasture without extra feed; and if he is fattening these cattle for market, he will find no time when grain feeding will be more profitable.

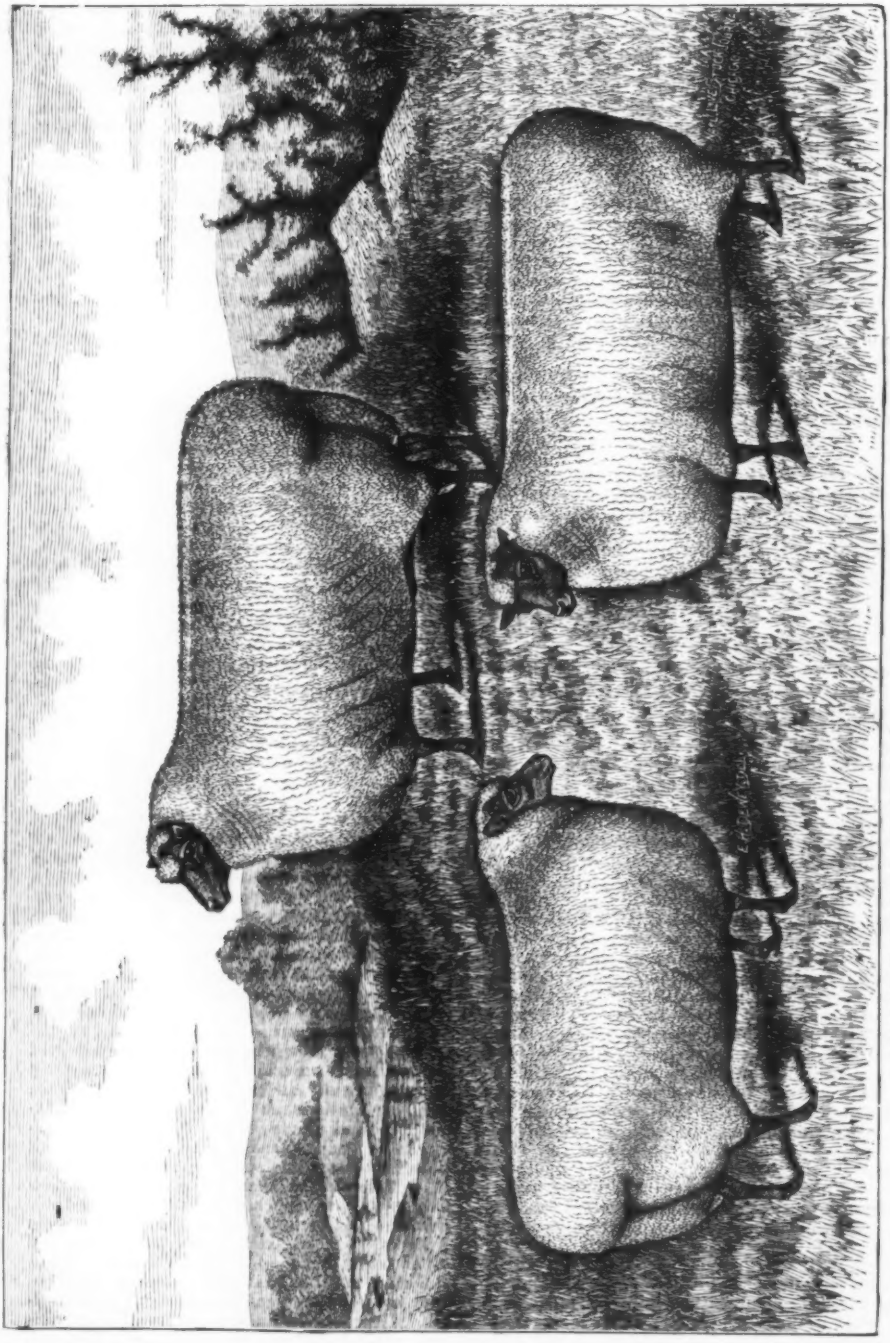
This journal has often shown the necessity of making beef in the shortest practicable time to reach the highest profit. This system must be followed much more closely in the future than in the past; for as our beef export to Europe progresses, it will compel the best mode of feeding to insure success. Prices are not likely to be above an average of 5 cents per pound, live weight, for the best cattle, and any other grade will never pay to ship. The only possible profit will lie in maturing young beef; and to do this successfully, the warm season must be worked to the best advantage. No feeder should be satisfied with a less average growth of his steers, during the grazing season, than two and one-half pounds per day; and to do this, there must be no period of short feed—no period of scant nutrition. We have experimented upon the effect of a small grain ration, even on the best pasture, and, after numerous trials, and weighings of animals, came to the conclusion that cattle can digest more nutriment than they can get from grass; that a small amount of grain can be digested in addition to all the grass that cattle can eat. The grain, being concentrated, does not add much to the bulk, but considerable to the nutriment assimilated. We found four pounds per day of corn-meal to be paid for on good pasture, and that six pounds paid more than twice its cost on short pasture.

Western feeders will consult their own interests by feeding six to eight pounds of corn per head through August and all the fall months. —*National Live-Stock Journal.*

## Oxford-Down Sheep.

To accompany the life-like engraving on the following page of Mr. Cooper's yearlings, we extract the following from his circular as his estimate of the merits of this breed:

Though the introduction of Oxfords in the United States is of comparative recent date, they have, notwithstanding, established already such a reputation for themselves as to make them as popular and as much sought after in America as in England, and I am confident that ere long they will be the leading sheep of America. This remark is based not only on theoretical grounds, but on good practical experience. When in England, in 1875, I could not decide which to buy—Oxfords, Shropshires or South-Downs, and upon asking Mr. John Thornton, the noted Short-horn auctioneer of England, which to try, he advised me to buy a few of each and keep them together in pasture for one year, giving them all the same attention, and by the end of the season I could tell which I liked best. I followed his advice, and not only did I give one, but two years' trial, and, as expected, the Oxfords were the favorites of every breeder. Their introduction throughout the States has brought such a monument of testimonials and recommendations in their behalf as would alone fill a volume. But at the present I shall only dwell upon a few of their characteristic points and essential qualities. They are excellent feeders and can live and keep fat where some other breeds will starve; they are capital breeders, generally bringing twins, and not unusually triplets; excellent milkers, as is shown by the early-matured and heavy lambs they produce; remarkably healthy, being perfectly free of all those hereditary and specific diseases which are so detrimental to their offspring, and which frequently causes such devastation among their numbers and serious loss to the breeder; they will endure close confinement better than any other large breed, as is plainly shown by not suffering in the least when kept in hurdles; they are good shearers, as numerous testimonials will prove; and their quality of mutton is unsurpassed, and is in the States, as in England, much sought after.



OXFORD-DOWN YEARLING LAMBS—Sired by Imported Freeland.
*Bred and Owned by* T. S. Cooper, *Coopersburg, Penna.*

## Cattle in the United States.

English farmers have expressed the opinion that the cattle of the United States would not hold out for any considerable increase in exportation. They say that, to all appearance, we are increasing as fast proportionately in population as in cattle. It is no doubt true that 28,000,000 of cattle in 1870 was perhaps a greater proportion to population than we have to-day. The Statistician of the Department of Agriculture figured about 30,500,000 in 1877; and it is probable that our increased production, since the stimulus of foreign export has been given, will show, next year, that we have at least 35,000,000 of cattle; but that is not likely to be a greater proportion to population than we had in 1870.—But the mistake is in supposing that the numbers represent the same quantity of beef. The last ten years has been devoted to improving the character, quality and weight of the cattle rather than their numbers. The increase in average weight and quality is equal to an increase of 25 per cent. in numbers. Then another point of considerable importance must be noted. Better feeding produces earlier maturity; and, therefore, if 5,000,000 of these are ready for market at 2½ years instead of 3 years, and 5,000,000 at 3 years instead of 3½ years, and 5,000,000 at 3½ years instead of 4 years, this would give about 16 per cent. more cattle for market each year without increase of the aggregate numbers kept.

The statistics for the fiscal year ending June 30, 1878, show some peculiar contrasts in the value of our cattle. We exported 80,040 head of cattle of all kinds, and of these about 40,000 head went to Cuba at $17 per head, and 24,834 head to England at about $97 per head. Here are the wild, grass-fed Texans to Cuba, and the Short-horn grades, with better feeding, to England, the latter selling for 5.7 times the price of the former. This is a most remarkable contrast to occur in our different grades of stock the same year. The weight of the Short-horn grades was about twice that of the Texans, but the value nearly six times as much. Ten years will bring a remarkable change in the quality and weight of these Texans, and we may safely say that the improvement will be more than enough to supply in quantity our present exports to Europe. It is easy to see from these few points how our cattle are likely to meet all the demands upon them from Europe. Each year, probably, adds nearly 100 pounds per head to their live weight, and thus there is no prospect of the British farmers escaping our competition from a lack of cattle.—*National Live-Stock Journal.*

## Keeping Swine in Good Health.

In the newly-started *Bulletin* of the American Berkshire Association, we find the following excellent paper by Wm. B. Henning:

Diseases of swine, like diseases common to other domestic animals, become more prevalent as we increase their numbers and production. The causes of disease, although various, are in the majority of cases the result of inattention and neglect. During the primitive years of our country's improvement little was known of the "hog cholera." This was because of the limited number of hogs, and the varied and extensive range of pasture, exercise and diet which they enjoyed. As the country became more thickly settled and better cultivated, the range allotted to the hogs was necessarily compassed, and their food restricted to sameness of diet, viz: corn. *Improvement in the breeds of hogs does not induce more sensitive and delicate constitutions.* On the contrary, it has been proven that those hogs that are finely bred, and well kept, are more exempt from the ravages of disease. By being "well kept" is meant that they have a variety of clean food, pure water, and all the exercise they will relish. We may feed hogs all they will eat of one kind of food, and yet fail to secure good results, simply because the hog, like its owner, is omniverous, and to have sound health and good digestion requires variety of food and regularity in meals. The pernicious and unjust practice of turning hogs upon the public highways, as is the custom of many who style themselves farmers, not only tends to produce disease, but also spreads those diseases which are contagious. "Road pasturing" subjects swine to much privation in food or water, or in both: and should the suffering animals find any putrid refuse or stagnant water, they will eat or drink with avidity; or finding a weak fence, will break into a field of grain and eat sufficient to cause fever, and all diseases accompanied with fever are more or less contagious. A serious cause of hog cholera is the result of stock men allowing hogs to "follow cattle." This practice must be severely condemned if we expect to raise healthy hogs and eat palatable pork; for, subsisting on the undigested corn in the excrements of the cattle, they *not only inhale but eat the fecal impurities which pass from the bodies of the cattle.* Swine should not be restricted from enjoying and exercising their fond proclivity for rooting. To ring hogs' noses may keep our pastures smooth, but will no doubt be disastrous to the general welfare of our porkers. The soil is full of insects and worms, particularly earthworms, grubworms, and cutworms, which the hogs will persistently hunt and devour if allowed to root, thereby benefiting the farm whilst obtaining food most necessary to their welfare.

Another cause of fatality among swine, is the neglect to protect them from the burning rays of a summer's sun. They are frequently turned into an enclosure so hard and dry that they cannot root to get fresh earth to lie in, with neither tree nor shed for shelter, nor fresh water to cool them. These are cruelties perpetrated every season by men who pretend to know how to raise hogs; and in view of these facts, is there any reason why the sensitive system of the hog should not be prostrated, or any wonder that many perish of sunstroke, or are literally burnt up by the scorching sun. It is just as essential to protect stock from the heat of summer as from the cold of winter, and in fact the effects of the heat proves far more injurious and fatal. To remedy this, let swine have moist earth to root if possible. Free access to shelter, pure water to drink, and it is charitable to allow them a pool

to wallow in, so they may have protection from flies. Diseases of swine during fall and winter may be largely attributed to diseased corn and foul bedding. Corn that is *unsound or discolored is ergoted*, and is not only injurious to all stock, but poisonous and fatal when fed in considerable quantity. It produces blind staggers in horses, and thumps in cattle, and of course will prove equally injurious and fatal to swine. It is error to suppose that a hog is so constituted that he can withstand a powerful quantity of poison. This is only true concerning those poisons to which lard is antidote, as arsenic, and all poisons not counteracted by lard or grease are as effective against the delicate system of the hog as against other animals. A wheat or rye stubble is ergoted in wet seasons and should not be gleaned by hogs. Cattle may eat unsound corn more safely than hogs, as they are not so much affected by the ergot. But good economy will be to consign such to the compost. Our physician forbids us eating spoiled vegetables, or tainted meat; likewise to keep stock healthy we must give healthy food, pure water, clean pens, and sufficient exercise.

Lice and kidneyworm are maladies of less serious consequence, and in the Southern States only is any trouble encountered from lice. A cheap and easy remedy is to feed sulphur once a week and keep the hogs in cleared land; allowing them to wallow in mud. For kidneyworm, feed sulphur and salt in regular and moderate quantities. Salt, alone, is generally a sure remedy, and is relished by no stock more than by hogs. A remedy for cholera has been found in a severe fly blister applied to the throat. Feed oil-cake gruel or flax seed, boiled, or give linseed oil; feed roots and soft rations, but no corn or anything to augment fever. Diluted carbolic acid applied as a wash during the first stages of cholera, and used as injections, has been of good effect.

The symptoms of hog cholera are loss of appetite, a dry empty cough, trembling, high fever, and the seat of pain appears in the throat and bowels, and the disease is likely to arise from any of the causes previously noted. However, since careful attention and timely precaution are a sure means of prevention, always at our disposal and comparative inexpensive, and while *no cure is ever sure*, let us assiduously adopt the former method of treatment, the labor being more agreeable and the profits greater.

When swine are enclosed in pens, three apartments are necessary. Always feed pigs away or apart from their nest or sleeping room, and provide an apartment for excrementary purposes. They should not have an excess of litter. When sheltered from storm by a substantial pen, give but little bedding, and change frequently. Dry wheat straw, corn husks, shavings, forest leaves and saw dust make good litter, but, if possible, avoid oat straw, from its tendency to create fever, and its affinity to moisture.

A rigid law should be enforced against any neglect to remove or bury any stock dying of disease, as the most careful sanitary measures in stock-raising will not prevent contagion from spreading so long as diseased stock are exposed to contact or proximity with healthy stock. And any person guilty of such neglect should be held just as culpable as if he removed bedding from a pest-house and threw it in the public highway.

Although the hog is cheaply and easily raised, and possesses a wonderful adaptability for so many conditions of feeding and keeping, it is but justice to our porcine friends, and, finally, profit to ourselves, that we study his natural wants and contribute accordingly; allowing him to be his own physician, when he will seek out and apply those cheap, simple and effective remedies which the allwise Creator has given him. Under these conditions can we expect to raise hogs with the best results, and eat pork with an appetite unassociated with the idea of hog cholera or trichina?

## Remedy for Engorgement with Meal.

Having lost stock (cattle) through their having obtained access to the meal bins, and having never received satisfactory answers to my enquiries through agricultural journals as to the proper method to be pursued in their treatment, I give you an account of the successful treatment of my last two cases. When feeding my stock one or two of my cows slipped into the open doors, and into a dark entry, where stood the meal chest. She was not discovered until she had fully gorged herself. When found she was put into a stable and given six drops of aconite, first tincture, in a little water, and then was immediately given half a teaspoonful of powdered mandrake root, dry, on the tongue. By night she was voiding meal freely, and was let out. Two days afterward I gave her about half a bucket of water. On the second day she was confined in the stable, and was given sufficient water to satisfy her at the close of the third day, though she required very little—about a bucket and a half, I believe.

The other case was one in which a cow obtained access to threshed wheat during all one day. I knew nothing of it until the next morning. I then gave her ten drops of aconite and half a teaspoonful of powdered mandrake root, on the tongue. She began voiding wheat that night, and continued for four days, though of course less appeared during the latter part of the time. I gave her a second dose of aconite on the evening of the first day, and two doses the second day. I also gave her about a quarter of a teaspoonful of the root, the mornings of the second and third days, though I cannot say it was necessary. On the second day, about noon, I gave her about half a bucket of water, and the same quantity once each day, as long as she was kept in the stable. I have heard of cattle being deprived of water for a week, under like circumstances, but where they seem to be doing all right I like to give them a little. In neither of the cases reported was there any permanent shrinkage of the flow of milk, though they give very little while getting no feed and a little water. I hope any one so unfortunate as to be obliged to have resource to some such measure will give the above a trial and report the results. Because six or ten drops of aconite do good, do not give twenty-five or

thirty, thinking that quantity will do more good. Any one disposed to give such doses can satisfy himself they are not required by dropping five drops into half a glass of water, and taking a spoonful of the solution.—*Cor. Country Gentleman.*

## The Poultry Yard.

By G. O. BROWN, Montvue Poultry Yards, Brooklandville, Md.

### Poultry Shows.

#### How Fowls are Judged.

Many of the agricultural societies throughout the country are adopting the plan of employing regular poultry judges to judge the display of poultry at their fairs. This is a move in the right direction, and means improvement in the farm poultry stock. The poultry judges should be required, in addition to placing the award notes on the judge's book, *the reasons*, whenever they are obliged to disqualify a bird. This the secretary could show the exhibitor, which would be an official record why the bird did *not* win a premium, and perhaps enlighten many on some of the points necessary to observe in breeding pure-bred poultry. All regular poultry judges are now appointed by the American Poultry Association, and no one can be appointed who is not known to be thoroughly competent. The poultry is judged at the regular poultry shows, and also at all agricultural shows where a regular poultry judge is engaged, in the following manner: The coops containing the fowls are numbered, and the judge is given a book which has simply the names of the different breeds in, under which are placed only the numbers, corresponding with those on the coops. To illustrate: if there are five entries of Houdans, it would be thus placed in the judge's book:

HOUDANS. *Fowls (or Chicks.)*

Entry No. 1.....
" " 2.....
" " 3.....
" " 4.....
" " 5.....

The judge would "score" the birds, and the pair scoring most points, if, for instance, it was entry No. 3, the judge would write opposite *first* premium, and so on.

A perfect bird would score 100 points; but *perfection is never secured.* A "*Standard of Excellence*" is published, containing the points of all the breeds, which is the recognized authority for all judges. Eighty-five points at the first-class poultry shows birds must carry to be awarded first premium. Birds that score up to the 90's are unusually excellent specimens. As an illustration showing characteristic points, we give the standard of a Light Brahma hen:

POINTS IN LIGHT BRAHMAS.

| | | | |
|---|---|---|---|
| Symmetry | 10 | Back | 7 |
| Size and weight | 13 | Breast and body | 7 |
| Condition | 8 | Wings | 8 |
| Head | 5 | Tail | 7 |
| Comb | 8 | Fluff | 5 |
| Wattles and ear lobes | 5 | Legs and toes | 7 |
| Neck | 10 | | |
| | | | 100 |

Any imperfection the judge discovers in these points, he has to use his judgment what the proportionate imperfections may be, and deduct accordingly,—going through each of the points named. By substracting the number of points the judge thus cuts off from the 100, shows the number of points the bird scores or carries. A good deal of experience, both in breeding and judging, is necessary, to become a proficient judge. Judging thus by numbers, the judge does not know who the exhibitors are, so there is no room for favoritism. An honest judge, however, values his reputation too much to give it away by careless judging, and would judge the birds on their merits alone, even if the owner's name were on the coops from the start.

### Plymouth Rocks.

"I have seen considerable in the poultry papers about the Plymouth Rock, and the past spring I secured eggs from three different strains, two of which professed to breed 'Plymouth Rocks' only. The result has been: 15 chicks were hatched from the three sittings, and no two are alike in plumage or color of legs. Some of the pullets have nearly pure black legs, and their plumage is *very dark*, while some of the cockerels are very light, with the right-hued yellow legs. Is this usual or characteristic of the breed?"

(The Plymouth Rock is a made breed, produced by crossing the Dominiques and Black Javas, and in some cases a third blood was used. As yet, they are exceedingly difficult to breed true to feather, and judicious care and selection in mating is necessary to breed them. The pullets are always two or three shades darker than the cockerels. As mated, and shown at the exhibitions, no satisfactory result would be secured, and these show birds are generally the results of two distinct matings. There is no settled *characteristic* form for the Plymouth Rocks; some "originators" breed them Cochin-shaped, others show strongly the Dominique form, while there are some that assume a medium between the two, which we should decide as *the* true Plymouth Rock; contending shape and form should be such as to cause the fancier to recognize the breed by it, as the case with Brahmas, Leghorns, Games, Hamburgs, &c. We believe that there are strains that breed pretty true, and are satisfied with due attention to culling out objectionable birds, a yard may, in a season or two, be relied upon to produce stock that will please the eye of even a critical fancier.)

### Care of Fowls.

Some say that fowls should roost out in the trees, etc., and are healthier for it. This will do in summer; but if a hen gets her comb and feet frosted in early winter, you need not expect her to lay many, if any, eggs the rest of the winter. I took my fowls about two months ago from their open summer quarters and put them into their winter houses, where there is ventilation and light. As it gets colder I make their houses closer. Fowls do much better in small separate flocks. This is important. I use whitewash,

lime and carbolic acid freely, and put kerosene on the roosting poles. I use carbolic nest-eggs. For feed I cook every morning in cold weather a hot breakfast for my fowls, such as bran and turnips, potatoes, scraps, etc., seasoning it with pepper. At dinner I feed light, so as to make them scratch more in the day-time to get food, but at night I give all they will eat—generally grain, which digests slower than soft food, and will last them during the night. The food should be constantly varied, giving all kinds of grain, but especially wheat and meat scraps are good food for laying hens. Corn is better for growing chicks, but in all cases the food should be constantly varied. Fresh water, and in abundance, is an absolute essential.—*Cor. Journal of Agriculture.*

## The Poultry House.

Just exactly what the poultry house should be like, must be left largely to the fancies and tastes of the builder. There are some general rules, however, that should be observed, and one of the most important is ventilation. The fact that any living creature, except man, needs pure air seems to be often forgotten. The fowls depend upon sanitary regulations for health as much as a human being does. Whatever else may be neglected, therefore, do not neglect ventilation. Sunshine is also necessary. Some poultry houses are more like a cellar than a place for living creatures to stay in. The house should be so constructed that the purifying, life-giving and health-giving rays of the morning sun can penetrate. This will help, too, to keep the house dry: a very necessary precaution. This is of so much importance that when a poultry house is built, it should be built upon soil that is the least likely to hold moisture. A sandy soil is the best for this purpose, and if that rests upon a gravelly loam the site is perfect for the purpose.

Of course the size of the house must depend upon the number of fowls, or rather the number of fowls must depend upon the size of the house. Overcrowding must be strictly avoided. Some One has said that there should be six square feet allowed for every fowl. Probably ten feet square is about the size which a house should be to accommodate twenty-five fowls. The custom of raising the roosting poles by steps is very bad. A fowl always roosts as high as it can get. In a house, therefore, where the poles rise from the bottom, the fowls going to roost first will get on the upper poles. Here they get all the bad air that comes from the exhaustion of the pure air by those which are roosting lower. The poles should always be placed on a level, and from three to four feet from the floor. The nests should be kept dark, as the hens like to reach them unperceived. The nests should be kept scrupulously clean, and so should the feed boxes and water troughs.—*Western Rural.*

THE DISPLAY OF POULTRY at the Baltimore Co. Fair promises to be an unusually good one; nearly all of the different breeds will be represented. Antwerp Carrier pigeons will be flown from the grounds to the city each day of the fair.

# Horticulture.

## On Grading Ground—IV.

It will readily be believed that a ditch carefully graded in the manner described in my last communication, will, with a firm bottom, work to perfection, even when the fall is little more than nominal. In such circumstances it is important to know just how much, or rather how little, fall we have; and the best way to come at it is this: with the stakes nicely in range, set up and adjust still another, ten feet distant from either of the terminal stakes. With a little assistance lay a light straight-edge on the cross pieces and a level on top. If a block of wood half an inch thick will suffice to raise the straight-edge level, it is plain that our fall is 5 inches in a hundred feet; an inch block shows 10 inches in that distance, and so on. I have often used for this purpose a handy little graduated hardwood gauge notched into steps representing inches and tenths of an inch, for facility in noting the precise degree of fall; but, when the fall is known to be sufficient, few care to enquire further concerning it. Strange to say, although grading stakes are much used in many places, I have never seen any one smooth the bottom of a ditch by means of them. I have done miles of ditching in that way and wonder how any one can get along without them.

Let us now turn to the making of walks and drives, in which grading may be seen under a variety of circumstances. Our drive may be straight of curved; it may be an interblending of arcs of circles; it may be steep or it may be flat; it may be rolling or it may have an even grade throughout; it may be partly through a thick wood and partly through a prospective lawn; in short there seems to be no end to the possibilities that might be conjured up for the occasion. But with a supply of rough stakes to outline the work, a garden line for our "pair of compasses, and our grading-stakes at hand, we are ready for all contingencies."

If we are merely carrying out the plan of an expert, prominent points will be joined or diagonals drawn and measurements made in a manner very generally understood. But when the work is left to the gardener—and many gardeners intuitively know just how and where a drive ought to go—the right way is to go to work forthwith, finish the task and let the map be an afterthought based on accomplished fact.

Our drive may be supposed to begin at the public highway and to extend to a mansion on high ground considerably forward and to the right of us. In such case the *right-hand* side of the road will be the most convenient to lay off and regulate. I am aware that surveyors lay out the centre or "axis" of the road first; but with our restricted facilities for leveling, it will be found better first to attend to one side. Let us go carefully over the ground and stake out in the general direction of the proposed drive. We go along the line a second time, setting the stakes with greater precision and paying particular attention to beauty of outline. Were we dealing with an even surface, a single uniform

curve from beginning to end of the route—a comparatively small arc of a very large circle—combined with a uniform grade throughout, would perhaps be the most perfect form that could be devised; but it will better suit our purpose to imagine all sorts of obstacles to the carrying out of such a plan. In the first place, by sweeping at once toward the right we should have lost our vantage ground, for the land slopes gradually downward; so we preferred to keep straight ahead until a point was reached where we had a better opportunity to branch off. In curving off to the right we must be particular to blend right line and curve properly. From the point of junction step back a few yards to the right and as near as may be at right angles to the straight line. From this as a centre strike out an arc of a quarter circle or less. If this is found to be in the proper direction, *well*; but if not we must try again with a longer or shorter radius. Gardeners do much of their laying out by trial-lines. This may be smiled at as unscientific, but it is nevertheless expeditious and satisfactory, as with a little practice but few trials are necessary. The joining of arcs of circles of varying lengths, each of which is a tangent to its neighbor, involves considerable 'office' work; whilst by a *trial* or two they can be struck off rapidly and so nearly perfect that the practiced eye can detect no error. Our next piece of outline may be a long easy sweep. In order that it may be uniform see that the stakes are set an equal number of paces apart. Beginning at the first stake, which will be on the arc just finished, give a glance toward the third one and note the apparent distance between the second stake and our line of vision. Next, look from the second to the fourth stake and shift the latter a trifle, if necessary, in order that the line of vision may be equidistant from the third stake. So with the rest. If, however, the stakes require much alteration, it is clear that we have made a wrong start, and the first few stakes must be readjusted so as to send us on our way rejoicing. There may be no fitting place to end this curve until we have gone much further to the right than we otherwise would have done, and so we require a reversed curve to bring us to rights again. Compound curves may be made to appear like an ill-drawn straight line, or they may be so exaggerated as to offend the eye. This must ever remain a matter of taste and judgment, for it is obvious that no rule could be formulated that would fit all cases.

The outline completed, we begin our grading at the lower end. Finish off the right-hand side of the road as far as the straight line extends, precisely as in the case of the ditch,—the staff showing how much cutting or filling may be necessary. Next, find two points on the other side of the drive, exactly opposite the terminal stakes and on corresponding levels. Set up stakes at those points and grade as before. With those perfect guide-lines the workmen ought to be able to round off the middle of the drive by the eye. If it is merely to have a sprinkling of gravel—and on many soils anything more would be superfluous—the shaping out may go on without regard to the covering; but where broken stone is necessary, allowance in depth must of course be made. It is getting fashionable in some parts, with a show of economy, to have drives so narrow that two carriages cannot pass without encroaching on the lawn, and I have known of a good fee being paid for this bit of questionable advice; but surely anything less than fifteen feet on an estate of moderate size should never be thought of.

It will be time enough to attend to lawn and other surroundings when our drive is finished. So we proceed with our curve.

*Baltimore Co.* JOHN WATSON.

## Pleasure Grounds and Greenhouse—September, 1879.

By W. D. BRACKENRIDGE, Florist and Nurseryman, Govanstown, Baltimore Co., Md.

To have the mind imbued with a desire after horticultural pursuits, is a pleasing theme on which to contemplate; yet if our views on such matters are not founded on the strict principles of vegetable physiology, we are apt to be led to uncertain vague theories, which cannot always, with any degree of facility, be reduced to practice. Nevertheless, we consider a knowledge of the constituent parts and principles of adaptation of anything we take hold of to the particular purpose to which it is to be applied, absolutely necessary. But then to apply any principle of this kind to practice involves labor; and lack of intelligence in this particular branch of industry is a subject of general complaint, seeing that one individual conceives a plan, but has not the time to demonstrate or explain, nor physical strength to carry it out himself, and has to get another to do the work, who can give no good reason for what he is doing, not having the capacity of judging what the end may be from the beginning.

On a former occasion we remarked that a great majority of thorough practical gardeners in the United States are foreigners, and even these, however well educated in their profession in their native land, have, under a different climate, and other influences by which they become surrounded in this the land of their adoption, to pass through another term of apprenticeship before they can make their services acceptably available. We speak here of thoroughly educated men in the profession, and not of that crowd of *one-year* pretenders by which the country is overrun.

It has been often remarked to me, that very few native-born Americans take to or follow horticulture as a profession, and that when they do, it is usually to enter upon the higher or lighter branches, or follow it as a money-making pursuit. Now this is all very well, and we may say desirable, but we would like to see a little more love for the science thrown in, to act as a sort of alloy on the almighty dollar so much sought after.

Yet with the little drawbacks we have named, it is true beyond dispute, that the love of horticulture is growing rapidly, as may be seen by the millions of fruit, ornamental trees and shrubs, and the tens of millions of flowering plants wanted yearly for our orchards and the

decoration of our parks and flower gardens, causing residences that formerly stood isolated on the plain to nestle in groves of umbrageous trees and flowers, embracing the noblest and most desirable kinds of temperate climes Now this state of things is pleasing for all true lovers of nature to contemplate, and should not every laudable incentive be used to further its growth? As having a tendency in that direction, we would remind those situated in the Middle States, that during the present month is a good season to transplant evergreens, and that this work is best when performed soon after a good rain, or when the ground is mellow enough to admit of getting up as many of the roots as possible. and by no means permitting them after being lifted to remain exposed to the action of the sun and drying winds. Cloudy weather is to be preferred for this kind of work, and should the ground be of a light nature, ought to be well settled in and about the roots, by giving a good supply of water, finishing the work by filling in around the stem with loose earth, which prevents the surface from cracking should a drought follow.

Cuttings made of the present year's growth root freely at this season, of such hardy shrubs as Spiræas, Deutzias, Forsythias and Wigelias. Make the slips about 3 to 6 inches long, removing the leaves entirely from the lower half, and those on the upper half cut back so as to leave about one inch of the leaf and petioles; then insert them in a sandy soil in some shady place, observing to press the earth firm to the cutting; these when rooted may so remain until next spring, when they can be planted out in rows until they become strong enough to plant out some place permanently.

Seeds of choice border plants and shrubs should be gathered as they ripen and dried in a cool airy place. If the sorts collected are pure to kind and have not been contaminated by impregnation of worthless kinds growing close by, then you will be stocked for next year, and will have the pleasure of helping your friends to a few, as the votaries of Flora ought by all means to eschew any feeling that might border on selfishness. When the flowers or leaves on your border plants become decayed or unsightly have them removed,—with all weeds,—and the surface of the ground raked clean and smooth.

Dahlias, trained to stakes, should have their main and lateral branches tied up as they grow; otherwise by the weight of their flowers and during heavy winds they are liable to get broken down.

Towards the end of the month prepare beds in which to plant Tulip, Hyacinth, Narciss, Crocus and Lily roots; a sandy soil made rich by well-rotted cow manure suits them best.

**Greenhouse.**

In this department much inconvenience and disorder may be avoided at a later period of the season by having the sashes glazed and the painting of the frame-work attended to, for all money thus expended is really a saving. We know of a greenhouse built twenty-five years ago that has been painted ten or twelve times during that period, and is at this moment nearly as good as new; whilst we know also of another, put up ten years later, which, for lack of paint, is now ready to tumble down about its owner's ears; therefore we say apply paint to all sashes and rafters, as it will pay in the end. Then mind the heating apparatus, whether it be hot water or hot air. All should now be overhauled and put in good order.

Collect a pile of sods from an old pasture field or meadow, taken off thin and stored up for winter use; in making up the pile it is a good plan to mix regularly through it about one-quarter its own bulk of old cow-manure; this, when chopped up and mixed with a small portion of wood, earth and sand, will form a compost capable of growing almost any ordinary kind of plant.

When leisure will offer, put in cuttings of soft-wooded bedding-out plants as Cupheas, Coleus, Achyranthus, Geraniums, &c.; these will root readily, if inserted in a box filled with sand,—or on a shelf in the greenhouse or cold-frame. Roses of the Tea, Bourbon, Bengal or Noisette kinds succeed well by cuttings if treated the same way.

It is now a good time to sow in pans seeds of Pansies, Chinese Primroses, Cinerarias, Calceolarias and a few pots of Mignonette and Sweet Alyssum; all of these will require a little shade in their germination,—when fairly through the ground, they should receive more light. Daisies and sweet scented Violets, designed to bloom in pots, should now be potted into fresh soil, and towards the end of the month all sweet-scented Violets should be got established in cold-frames; that is, if they are expected to produce early and fine flowers during the winter.

## Hortus Hamptonensis.

The Ivy which clothes the venerable trunks of the grand old cedars shows clusters of green fruit, the harbinger of autumn days. But a few short weeks and our forests will be clad in raiment of glorious color. The copious rains of August have made the drought of July a thing of the past The season's work in the open ground, with its errors and successes, is before us, and the lessons of another summer are added to our stock of experience. Happy the man, in either farm, garden or trade, who can profit by both his errors and successes. We have a glorious climate notwithstanding droughts and hot suns, and, while the heat forbids us attempting many things which are a success in England's dull sunlight, we are proud of the vast array which we can grow both in flower and vegetable garden which they cannot. No need, in our glorious sunlight, for tacking fruit trees to walls in order to ripen fruit,—for with the most ordinary care we get more and better in the open exposure. Then look at the great array of vegetables that grow like weeds here, many of which the English gardener must nurse under glass,—Tomatoes, Egg Plants, Snap Beans, Lima Beans, Sweet Corn, Sweet Potatoes and *Gumbo*; (we are Southern born, and don't know *Okra*.)

I have often wondered how the middle class of Englishmen, who can't afford glass houses, get along with the meagre list of vegetables which their climate gives from the open ground.

No wonder they eat so much roast beef. Our gardeners are gradually learning the difference in the flower garden between the old country and the new, and all around are seen evidences of the work of the great teacher experience, in the improved methods everywhere being adopted. Some of our old friends still sigh for the old hard-wood plants they grew with such success in the old country, and seem to think the present fondness for a different class of plants a degeneration on the part of the cultivators. It is true that most of the old greenhouse plants called forth considerable skill in growing fine specimens even in England, but where is the gardener, with all his skill, who can grow fine specimen Ericas and Epacris in the climate of Maryland? And these are not the only plants we could name that we have found useless to cultivate. Why, then, should we attempt to keep up the old-fashioned collections, when all the riches of the tropics are open to us? The greenhouse, as known in England, is an impossibility in our winter climate, and, naturally, as we have to use fire-heat, we have gotten more and more in the habit of growing such things as require a good deal of heat. An entirely different class of plants can be used for bedding only in our climate, and such as require the full tropical heat and sunshine. Among such as are generally known among gardeners as *stove-plants* there are doubtless yet many untested that are destined to add beauty to our sub tropical gardens. Crotons I find have flourished well in the open ground the present summer, even under the severe test of six weeks almost without rain. Our sunlight brings out the colors on the Croton in a marvellous manner, and we expect ere long to see large specimens of Crotons used as prominent objects in the sub-tropical gardens. I am not writing now of planting them in ribbon beds; we have cheaper plants available for this purpose; but for use among clumps of other tropical plants to produce an entirely different effect from the ordinary ribbon bed. The resources for this kind of planting are large, as most of these stove-plants are easily propagated and soon develop into fine specimens. It is in this direction that there is most room for improvement in our gardens. Among plants known to thrive well planted out in summer are Musas of many sorts, particularly the great Abyssinian Banana (Musa Ensete,) the Ficus tribe, particularly the Ficus Elasticus, Crotons of all kinds, Alocasias, some of the fancy-leaved Caladiums, (though most of those are not altogether satisfactory,) several varieties of Dracenas and, of course, Caladium Esculentum and Cannas. In shady spots Begonias of the Rex tribe, Sanchezia Nobilis variegata and Maranta Zebrina make picturesque groups, particularly if arranged on rockwork. Then in the way of rockwork why could we not make artificial grottoes and have pockets on the interior filled with the delicate South American Adiantums and Gloxinias. The world of beauty to be developed in this direction is endless, and, while we would not depreciate the beauty of well-kept carpet and ribbon beds, we do object to turning the whole garden into a piece of geometric embroidery. W. F. MASSEY.

## The Caladium.

BY MRS. J. B. MOORE BRISTOR.

Had I three feet only of garden earth, paved or unpaved, the plant I should choose would be Caladium esculentum,--that is, for summer decoration. If my three feet of ground were bounded by a brick wall, I would train over it a wisteria, rose or honeysuckle; but close to that, in a box or half-barrel, I would plant a Caladium bulb. When I was living in Virginia I had a very small garden round my front door; on one side of the steps, raised on bricks, a box stood, in which one of these magnificent tropical plants flourished—its enormous leaves attracting the wonder and admiration of all passers-by. This season business made it impossible for me to leave the city in July, so I indulged myself, in the absence of my family, with a few plants. From Mr. Brackenridge's nursery I got a Caladium bulb very late in the season—some time in July—with roses, lilies, etc. My lot runs back two hundred feet, having a long back-building beyond the two parlors, a good-sized paved yard, then a gate and garden beyond. The Caladium I put in a box on the bricks, close to the hydrant, before the window of the back parlor. In spite of several accidents, cuts and blows of neighbor's children, and one drunken woman, which marred the first leaves and broke off a superb one, the plant has grown wonderfully. Had it not been thus injured, it would now surpass in stateliness and beauty anything I saw in the grounds of the Paris Exposition, one leaf being a good deal over two feet in length, of the richest velvet green; very thick, beautifully ribbed and veined. Its great requisite is abundance of water, which I poured on the roots four or five times daily. It does better in shade, where the leaves are sometimes three feet long. Through the intense heat it has been my great pleasure to watch its leaves unwrapping themselves like a folded flag, the great stems upholding their gigantic leaves, and seeming to say: I am one of the wonderful works of God. It is a good thing to accustom children to striking, elegant objects in nature, as it gives them a taste for and love of the beautiful. The leaf stalks need support in case of wind or storm, as the leaf is heavy. The Caladium is not expensive, and the bulb can be laid aside, kept from frost and used another year.

## Smilax for Winter.

Those who wish to cultivate the smilax in their windows next winter should start it now. Separate the bulbs, allowing but two or three to 4-inch pot. Use loam, leaf mould and sand in equal quantities for potting, with a little cow manure mixed thoroughly among it. Place the pots where they may have a fair heat, and not much sun, and keep the soil just moist. When the plants appear above ground remove to a window where they may get the morning and evening sun and keep the pots moist, but not drenched with water. Smilax likes plenty of heat but not a hot sun. Many persons make a mistake in attempting to train the vines on

trellises. They should simply be given a small twine to cling to. Thus they will make a nice growth and besides being very pretty will furnish an abundance for cutting during winter. In cutting sever the plant at the point wanted and pull the whole vine from the string. The bottom will again grow and form a new vine. If wanted for permanent show, the strings may be carried around any object, and their peculiar growth will produce a very nice effect.

## New Fruits—Pear Blight.

*Messrs. Editors American Farmer:*

Our strawberry crop being over for this season, it might prove beneficial if your readers were to compare notes. We would like to hear from those who have grown the newer varieties as to their general qualities, the hardihood of the plants, both winter and summer, quantity and quality of fruit, etc., what raspberries were winter-killed last winter, and what varieties escaped?

Any reliable general information on small fruits we think would be interesting to a large number of readers. Personally, I would like to hear something about the newer varieties of gooseberries; whether they have thus far withstood mildew?

Our pears have suffered worse than usual from fire-blight this season, and no application nor any cultural treatment thus far has had any material effect upon this disease. Allow me to ask the question: have we during the last ten years advanced one whit nearer solving the problem "What is fire-blight?" Of course those whose orchards have never been visited, or but very lightly, "know all about it." The writer remembers a little affair which happened somewhere near a quarter of a century since. When the late large-hearted Mr. Robert Fish was gardener at Putteridge Bury a disease got into the cucumber pits, and not a single fruit would swell off. Everything that could be thought of in the way of purifying was done, but without effect. Mr. F. at the time was contributing to the *Journal of Horticulture* "Doings of the Last Week," wherein he described the disease, also what had been done in the attempt to clear it out. This elicited several replies, and amongst them one from one who never had and never expected to have a disease amongst his cucumbers, with *his* treatment. It so happened, however, that the individual was in a short time willing to accept a supply from Putteridge Bury. This exactly coincides with our experience in regard to fire-blight. Those who have the most intimate acquaintance with the disease know the least about it. N. F. F.

## Selecting and Preparing Fruits for Market

Was the theme of D. S. Curtiss, proprietor of the late *Fruit and Flower Magazine*, at a recent meeting of the Potomac Fruit-Growers.

Premising that the arguments and facts of his paper were drawn not only from his own knowlege and experience, but largely from recent reports before some Northern and Western societies, the essayist proceeded substantially as follows:

Next to raising fruit is the knowledge how to put it profitably into the market.

I hardly need say in this presence that to have large, fair and sound fruit each year, the trees must be healthy, occupy a suitable position and not be allowed to overbear.

### Rationale of Thinning.

The effort of nature is to produce the greatest possible quantity of seed. It is this seed-producing which so exhausts the trees, so that by thinning the fruit we not only save the tree from exhaustion, (and thus aid it to bear also the next year,) but we turn the juices of the tree to a good account, and cause the growth of large and luscious fruits annually.

Four principal elements enter into the profitable marketing of fruits: color, size, packing and seasonableness; incidental to these, however, are assorting and soundness.

### Color

Has very much to do with attractiveness, and consequent rapidity of sale. Whatever the color of the fruit, it should be bright and distinct. Purchasers seeing high-colored fruit exclaim: "What beauties! we must have some of *them*." And they *will* buy at remunerative prices; while that which has a dull, murky hue remains unsold.

### Size.

Fruits that are large and even size and good shape also command the substantial approval of purchasers, while small or mixed specimens remain on hand unsold.

By "large fruit" I do not mean coarse overgrown specimens, but the largest and finest specimens of any good variety.

### Honest Packing

Will always be found to pay the best in the long run. Let it be known that your brand on the package means large and fair fruit all the way down to the bottom. You will always be sure of quick and remunerative sales; for fine, large, first quality of fruit rarely ever goes a begging for customers. G. F. NEEDHAM,

*Washington, D. C., July*, 1879. *Reporter.*

## What Pears Shall I Grow?

Whatever is said regarding the growing of apples, pears, field crops, flowers, or any plant or crop having a place in our agricultural or gardening operations, must be said with reference to certain wants, conditions, circumstances or localities, if the directions would possess any value. No rule suits every case; no crop or plant is applicable to every locality; no advice meets every condition. Still, there are certain well-understood principles which are of value, because embodying the accumulated results of the best practice, under varying conditions and circumstances.

Now, as regards pears, a farmer or gardener who is to set a number of trees this spring would naturally ask, shall I set dwarfs or standards? To this there might be given several answers, and they would take shape something

after this form: For profit, for permanency, for market purposes—the standard; for quick returns at the expense of short life, for grounds of small extent, for family uses—the dwarf. The standards are longer-lived, grow larger and produce more fruit (one or two varieties excepted) than the dwarfs. Besides, the tree seems to have the habit of growing wood for future use—a good quality where one is planting for profit and permanency. The dwarfs, on the other hand, come into bearing young, are well adapted for garden culture, or where a few pears are wanted for family use, but at ten or a dozen years old have seen their best days.

The tree is most at home in a rather heavy loam, but it must be warm and rich, kept clean and mellow by frequent culture—something the trees delight in during the growing season. Animal manure, wood ashes and farm compost are the best fertilizers, and these, as is well understood, should be applied in the fall. The best pear-growers are united in the belief that thorough and systematic pruning—not with saw and knife, on the butchering principle, but the pinching off all surplus young shoots, when not over four to six inches long—regulates the growth and welfare of the trees, and has a tendency to induce the maturity of the fruit spurs, by which means an earlier and better quality of fruit is obtained, while the tree itself is kept uniform, well balanced and handsome. If those not experienced in pear culture are to set out trees they certainly cannot have a better guide than to ascertain from growers in their own localities the varieties best adapted to their soil, situation, local circumstances, rather than to learn these points by their own, perhaps expensive, experience. A day spent in obtaining this information among one's neighbors will be time well used.

After all, one likes to see a list of varieties. So here is one, made up after much study and inquiry, which it is believed will not vary greatly from the list which a hundred of the best growers in the best pear sections of New England would recommend. It is true some we have placed high up on the list might be put down a peg or two, and others brought to the top which we have placed further down; but a list of the best eight varieties would be very likely to include these sorts, in about these positions: 1. Bartlett, a general favorite, of admirable quality and always salable at the highest price. 2. Seckle, high flavor, productive, uniformly bringing a good price in market. 3. Sheldon, a fine grower and good bearer, selling for the highest price. 4. Beurre d'Anjou, an excellent, productive and profitable sort. 5. Duchesse d'Angoulemc, very popular and of the highest quality. 6. Beurre Bosc, an esteemed late sort, high flavored and much in demand as a market pear. 7. Lawrence, a good bearing sort, one of the best winter pears. 8. Vicar of Winkfield, very productive, and, as it ripens out of season of most others, finds a ready market at good prices.—*American Cultivator.*

A GREAT "SMALL INDUSTRY."—Salem, North Carolina, during three years has shipped three million pounds of dried blackberries.

## Strawberry Culture.

Messrs. Ellwanger & Barry, in their strawberry circular for 1879, give the following:

THE SOIL AND ITS PREPARATION.—The strawberry may be successfully grown in any soil adapted to the growth of ordinary field or garden crops. The ground should be *well* prepared, by trenching or plowing at least eighteen to twenty inches deep, and be *properly enriched* as for any garden crop. It is unnecessary to say that if the land is wet, it must be thoroughly drained.

SEASON FOR TRANSPLANTING.—In the Northern States the season for planting in the spring is during the months of April and May. It may then be done with safety from the time the plants begin to grow until they are in blossom. This is the time we prefer for setting out large plantations.

During the months of July, August and September, when the weather is usually hot and dry, *pot-grown* plants may be planted to the best advantage. With the ball of earth attached to the roots, they can be transplanted without any failures, and the trouble and annoyance of watering, shading, etc., which are indispensable to the success of layer plants, are thus in a great measure avoided. As the weather grows cooler, and the rains more frequent, layer plants can again be used until the freezing of the ground, although *pot-grown* plants are preferable at all seasons. Layer plants, if set in warm, dry weather, as August or September, must be watered and shaded until they have commenced to root.

SUGGESTIONS FOR GARDEN CULTURE.—To cultivate the strawberry for family use, we recommend planting in beds four feet wide, with an alley two feet wide between. These beds will accommodate three rows of plants, which may stand fifteen inches apart each way, and the outside row nine inches from the alley. These beds can be kept clean, and the fruit can be gathered from them, without setting the feet upon them.

CULTURE IN HILLS.—This is the best mode that can be adopted for the garden. If you desire fine, large, high-flavored fruit, pinch off the runners as fast as they appear, repeating the operation as often as may be necessary during the summer. Every runner thus removed produces a new crown at the centre of the plant, and in the fall the plants will have formed large bushes or stools on which the finest strawberries may be expected the following season. In the meantime the ground among the plants should be kept clear of weeds, and frequently stirred with a hoe or fork.

COVERING IN WINTER.—Where the winters are severe, with little snow for protection, a slight covering of leaves or litter or the branches of evergreens, will be of great service. This covering should not be placed over the plants till after the ground is frozen, usually from the middle of November till the first of December in this locality. Fatal errors are often made by putting on *too much* and *too early*. Care must also be taken to remove the covering in spring just as soon as the plants begin to grow.

MULCHING TO KEEP THE FRUIT CLEAN.—Before the fruit begins to ripen, mulch the

ground among the plants with *short* hay or straw or grass mowings from the lawn, or anything of that sort. This will not only keep the fruit clean, but will prevent the ground from drying and baking, and thus lengthen the fruiting season. Tan bark can also be used as a mulch.

A bed managed in this way will give two full crops, and should then be spaded or plowed down, a new one having been in the meantime prepared to take its place.

FIELD CULTURE.—The same directions with regard to soil, time of planting, protection and mulching as given above, are applicable when planting on a large scale.

THE MATTED ROW SYSTEM—the mode of growing usually pursued—has its advantages for field culture, but cannot be recommended for the garden. In the field we usually plant in rows three to four feet apart, and the plants a foot to a foot and a half apart in the row. In this case most of the labor is performed with the horse and cultivator.

## Vegetable Garden—September.

Gardening is rich in enigmas. When we stir the ground frequently in dry weather we admit *moist* air to the roots; when we tread firmly on roots and seeds it is the *dry* air we want to exclude. During the late severe drought I gave the treading-in of seeds of various kinds a very fair trial, but it had no effect whatever, and had it not been for the rain we had near the end of July, the seeds would have remained dormant still. This failure has not shaken my faith in the great importance of firming the ground, but it shows that our dry uplands get so very dry at times that it is impossible to raise corn or anything else on them for the time being. Many things hold good concerning the rich soil of the market gardens that will not apply to ordinary farm lands. The former may appear to be dry as dust when they are yet capable of starting any kind of seed that may be sown on them; the latter do get so dry from lack of humus that no success can be hoped for except soon after rain. Even strawberries from pots, which never fail to grow in good rich gardens, will often die with the best of treatment on a gravelly knoll. I was not aware until now that raspberries were so easily transplanted at midsummer. I moved a lot three weeks ago, gave them one watering, and they look very well now, although the weather has been hot and dry ever since. No doubt they would have done still better with a mulch. I may add that on account of the long drought they had hardly any fibrous roots when transplanted.

September is the time to sow lettuce and cauliflower for transplanting into frames, and a supply along with cabbage for early spring planting. Some prefer to plant their cabbage in ridges in the fall, but on my soil I should lose three-fourths of them. We must vary our practice according to circumstances. It is difficult to fix a date for sowing cabbage in fall,—perhaps the 25th of the month would be as safe as any. It is a great disappointment to have them run to seed, as they often do, and we should be careful not to sow too early. Early York is more troublesome in this respect than the Jersey Wakefield. A neighbor who raised handsome cauliflower in frames, and who is uniformly successful, tells me that he raises none but the Walcherin variety. From the 10th to the 20th is a good time to sow spinach, kale and winter radish, also to plant onion-sets. It is probably also a better time to sow onion-seed than in spring. In such a winter as last they might want a little covering, but there would seldom be much loss even without it. I have only tried it once, but they did remarkably well. Here is an acre of corn ten feet high, where, a year ago, nothing would grow. One good stone drain settled it. Does any one still work wet land?

JNO. WATSON.

## The Irish Potato—its Culture, &c.

*Messrs. Editors American Farmer:*

The importance of this crop and the magnitude it has assumed (some 120,000,000 bushels annually) has prompted me to suggest a few thoughts for your readers. *The soil*—a dry sandy loam—is the proper home of this esculent; if too wet a failure will be the result, so recourse will have to be made to underdraining. If deficient in humus, this must be supplied either by turning under green crops or by a *liberal* supply of well-rotted compost; avoid all fresh strong manures, as this will have a tendency to develop early rot and a gummy nature to the tuber. I would suggest a compost of cotton seed, stable manure and muck or woods mould to be put up in the fall, so as to have it thoroughly rotted and well incorporated by frequent mixings by the time the season for planting has arrived, then lay off your rows 3 feet apart and fill a deep trench half full of this compost, (the ground just previous to this to be deeply plowed, subsoiled and harrowed;) cut large-size potatoes in 4 parts; drop 14 inches apart in the furrow; cover 3 inches deep. After covering, prepare a mixture of one part fine salt and eight parts of wood ashes and sow thickly,—say one half inch deep upon the top of the covered ridge,—which each successive rain will wash down deeper, furnishing potash, which is the essential food of this crop. Plant the early varieties as early as possible, and so soon as the plants are 2 inches high plow as close to the stem as possible and throw the soil immediately back and dust frequently with a *liberal* allowance of gypsum, and do not work the crop too late, as it will tend to the development of new tubers, which will reduce the maximum of well-developed ones. Dig and store in a dry atmosphere on the ground floor of a well-darkened dry cellar, avoiding light and sunshine upon the tubers as far as possible, as this tuber "loves darkness better than light." As to varieties, I like the Ohio and Early Rose for earliest planting and the White Peach Blows for first of May.

Yours respectfully,

*Halifax Co., N. C.* JNO. D. THORNE.

## Keeping and Marketing Honey.

G. M. Doolittle, Borodino, N. Y., writes as follows in the *American Bee Journal:*

If possible, we want our honey room in the warmest part of the building occupied, so as to evaporate the honey that is in the few unsealed cells around the edges of the boxes next to the wood, so that when we come to glass it or get it ready for market the honey will not run out or soil the combs or boxes. To this end we painted our shop a dark color, and located our honey room in the southwest corner, so that the rays of the afternoon sun would make it very warm. When we get a ton or so of honey in it, the temperature stands at nearly 90° day and night, as the honey holds the heat generated during the day through the night. By leaving it thus for a month we have our honey so we can tip it over just as we wish without leakage, and if after it gets to market it is stood in a damp, cool room, it will be some time before it will take on moisture enough to affect the looks of the comb to any extent.

We are often asked by correspondents what is the cause of their honey being transparent and oozing out of the cells. The cause is dampness. While in New York city in 1877, I saw honey that had been kept in a damp, underground room so long that the sealing of cells was bursted, and the honey had soured so it smelled very badly, and was leaking fearfully.

While speaking to the parties about it, they said they believed a cellar the best place to keep honey, but it needed little argument to convince them that they were wrong. Of course, this high temperature will cause the moths to hatch soon, but I told you last month how to head them off.

In this locality the crop of white honey will be all off by the middle of this month (August,) and then we are ready to go to glassing and crating the first off. Have your crate by your side, and your glass near you. First get the propolis out of the corners of the box, if there is any where the glass is to come; then bend up the little tins put in to hold the glass, drop in your glass and bend down the tins. Now you can scratch off the propolis on the edges of the box without getting it on the honey. Scrape off clean so the box will look nice and tidy, and set in the crate. In crating honey it is always proper to put the best side of the honey out, the same as wool is done up. We once knew a man to do up his wool with the dark or outside ends out, and he could hardly sell it at any price. Why? Not because the wool was not just as good, but because it did not look so well. Just so with a crate of honey. Market men want the best side out, but do not mistake and fill up the centre of the crate with dark honey. Grade your honey as given last month, and then put the best side of each lot out, but let your white honey be all No. 1 white.

When the crate is full, put on the cover with bright, round-headed screws. This gives the crate a nice appearance, does not tend to break the honey like driving nails, and the cost is but a trifle. When crated, sandpaper off the sharp corners and top off the crate, and pack nicely away till ready to ship to market.

We have had much trouble in getting glass cut accurate enough to suit us, as they do not expect to cut very close at the factories, and if a glass is a little large it springs the box from the honey and sets it to leaking. For the past few years we have bought our glass cut 6 by 30 inches, and re-cut it the 5-inch way ourselves. We cut the same as in a mitre box—that is, have a box fixed with regulating screws, so that you can cut the glass just exactly 5 inches every time. Have your cutting-stick fastened to the box so the glass will go under it; shove up the screws and cut; leave a drop of two inches under, and touch the glass so as to break off where cut and drop down; shove up and cut again, breaking off as before. Thus you can cut very fast and be sure every glass is right.

Sell your honey if possible, rather than ship on commission, for the returns rendered by the commission men are not always satisfactory. Always ship your honey in warm weather (the first half of September) if possible, as it will go much more safely than in cold weather. If you can sell your honey at home do so, but the most of us cannot so dispose of a large quantity. If we prefer to have our buckwheat and fall honey stored in boxes, we leave them on the hive; otherwise it is best to take them off, for the bees daub them badly with propolis at this season of the year. A good way is to take off the boxes and put in frames in place of the side boxes, having them filled to store away for feeding purposes, or get your starters for the bees for next season built now. Bees will build comb very fast in the body of the hive during a good buckwheat yield.

Look after your colonies and see that none are queenless, and if through with your nuclei, unite them so as to make good colonies. We never could have much success rearing queens and introducing after the yield of buckwheat honey was over, although it is advised by some of our best apiarists. We would rather raise and introduce five queens during July than one in September. Keep things looking tidy and nice about your shop and bee-yard, and be ready next month to fix your bees for winter.

## The Gunpowder Farmers' Club

Held its regular meeting on the 30th August, at the residence of John Crowther, near Cockeysville, several of the members absent.

After the tour of inspection—which we arrived too late to participate in—the business was opened by the report of the inspection at the preceding meeting, at John D. Matthews'.

The fertilizer committee reported that bone had proved a failure on wheat, whilst several brands of super-phosphates gave good results,—there being no perceptible difference in the yield from them.

### Half Hour for Questions.

Jno. D. Matthews had some very bad washes in his field, which he had filled up with straw and fodder, but they had washed up again; what is he to do? (*a.*) Fill up again, stake

down well, and run water furrows away from them.

John Bond had filled up washes with short straw, rubbish, &c., on which stone from newly-plowed ground was piled up. They had not washed out.

Dickinson Gorsuch asked whether there was not an unusual quantity of smut on corn this year. Jno. D. M. had a great deal, and noticed later manuring produced most smut. (*q.*) Is it more noticed after winds and rains? (*a.*) Yes. D. G. asked: Is there any land on which phosphoric acid, potash and ammonia combined would not act favorably?

Jno. D. M. thought there were some lands where other ingredients than those named would be necessary to restore complete fertility.

A visitor instanced a reported case where the application of magnesian lime had produced remarkable results in improving a poor piece of land, on which the ordinary super-phosphates and oyster-shell lime had no effect,—leading to the belief that in this instance the magnesia was a lacking element.

Wm. Whitelock, a guest of the evening, asked what was the opinion of the club as to the benefits which chemistry had bestowed upon agriculture, as shown by the increased crops now gathered.

Saml. M. Price thought in his own case the increased yield of grain per acre had been doubled in the last twenty years. On his farm—to which lime had not been previously applied, his father being opposed to it—after a moderate dressing the first crop was doubled, and the succeeding one more than doubled. Other members thought the average increase in yield of the farms was largely due to the aid given by science.

The regular question for discussion,

**Is there any loss sustained by spreading manure on grass land during the summer months?**

was then taken up.

Ed. H. Matthews doesn't think there is. Even if the weather is dry the manure shades and protects the ground.

Jno. Bond had little experience. He knew where manure was hauled out on grass land directly after harvest, when the ground was broken up for corn, it was greatly improved thereby, and the results were better than if the manure had been spread just before plowing.

Saml. M. Price cannot say as to the loss, but in practice is willing to put manure out at any time and always on top. Is satisfied it is better to put it on the surface than to turn it under even 6 or 8 inches. The mulching gives it an advantage and it holds the dew.

John Crowther hauled manure out directly after harvest on grass land in preference to using it on wheat, trusting for that to commercial fertilizers. The manure dried somewhat, but the absorption of dew kept it from becoming too dry. Thinks the manure shades the young timothy. Would prefer to use manure in this way to any other, and believes less valuable matter escapes than from dry ground prepared for wheat. On land which has been six years in grass he this year got a large crop of grass, the season considered. He originally applied forty 4-horse loads to the field, and the results have justified it.

Dickinson Gorsuch has no experience in putting out manure as top-dressing on grass lands, but would prefer not to put out in very dry weather. He applies on corn ground in spring, but thinks top-dressing has a tendency to make ground more friable; cloddy ground especially breaks up more easily. Cannot but think there is some loss of ammonia from manure lying under hot suns.

Jno. D. Matthews thinks there is not only no loss, but that it is the best time to apply. Puts his out immediately after cutting, and believes there is no evaporation that hurts. The ground is kept moist, and the young plants shaded.

B. McL. Hardisty has not considered about the loss in top-dressing after harvest, but believes the gain to the succeeding crop of grass a full compensation for any escape of ammonia into the air.

D. Conn (a guest) thought it was far better to top-dress after manure, and run the risk of some loss of valuable elements, than to leave the manure in the barn-yard, or at least in the average barn-yard, with its losses by drainage and evaporation.

Wm. Whitelock said his theory was that as much good was done by the coating of manure intercepting evaporation from the ground as it lost itself by the same process; and that, besides this, the salts in the manure attracted moisture from the air. By putting out in summer you avoid also the certain loss to which the manure is subjected in the barn-yard by sinking and evaporation.

**Crop Reports.**

In accordance with the custom of the club, the members submitted verbal reports as to their crops of grass and small grains. These are in most cases only estimates as to the yield, but their general tenor at this meeting was an illustration of the effects of the extremely unfavorable season which had been encountered. Although there were some good crops of hay and wheat reported, it was said by a member that the average was probably lower than was ever made by the members of the club since its formation.

**Exhibit of Products.**

The Baltimore County Agricultural Society, having offered a premium to the farmers' club, grange or individual who should present at its fair on September 10, on a wagon of any description, the largest, most varied and most effectively arranged collection of farm and garden products, all raised and prepared by the exhibitors and members of their families, the club determined to prepare such a display, and appointed a committee to collect the materials from its members, and to arrange for their proper exhibition,—S. M. Price offering to furnish the wagon and team, a calf and a pig, and other members special productions for which they are noted. The committee consists of Messrs. Saml. M. Price, John Bond, John Crowther, Edw. H. Matthews and W. W. Matthews, and it may well be assumed that from the resources at their command, afforded by the special branches of production of the members of the club, they will get to-

gether an exhibit which will be large, varied and interesting, and difficult to be excelled by any competition it may meet.

## Work for the Month—September.

No time is to be lost now in preparations for future crops, but he does wisely who stops to do his work well.

**Wheat.**—It is especially true that thoroughness here is of the first importance. To deep turning the soil and thorough pulverization is only secondary the necessity for firmly compacting it so as to secure a close and solid seed-bed for the grain. The division and subdivision of the particles of the soil are necessary to permit the full influence of air, moisture and heat. Unless the soil is finely pulverized the plant food is not available for the uses of plants, and unless it is drained, naturally or by art, none of the processes of nature essential to the growth and fructification of a crop can be carried on. Wheat cannot be produced on wet land, so that such soils as have superfluous water present must be rid of it by means facilitating its quick withdrawal. This being the first step, good plowing, frequent harrowing to produce the finest tilth attainable, and the use of the roller to ensure a compact seed-bed, are the following steps.

The paper of Dr. Maddox gives a resume of the most approved applications of fertilizers. If may not be amiss to suggest that experience points to the preferable use on the surface to rough manures, such as are likely to come from our barn-yards, and composed largely of rough materials like corn-stalks, undecomposed straw, &c. Portions of these, which do not quickly decompose, gradually disappear by the alternations of freezing and thawing, and protect and mulch the young plants.

Of special fertilizers for the wheat crop, none as a rule are more certain in action, or profitable in returns, than those containing large percentages of phosphoric acid. Nitrogen is largely required by all cereals, and some soils supply it in sufficient amount, but as a rule it seems to be conceded that the use of ammonia continues to be favored for growing wheat. The use of the drill favors uniformity in applying fertilizers, and they are placed in immediate or almost immediate contact with the seed, which is to be pushed into growth. The other advantages of sowing by the drill are coming to be generally recognized. Saving is made of seed as well as of time and labor; regularity is insured in its deposit. The liability of winter-killing is decreased also.

The quantity of seed sown and the time of seeding varies according to latitude; indeed, according to every locality. As a rule in this section from 5 to 8 pecks to the acre is sown—the latter quanity when broadcasted. The practice prevailing is to sow less seed on richer than on poor soils.

Early sowing would be the usual preference, except for the liability this incurs of damage by the fly. In Maryland seeding-time covers the period from September 15 to October 15, and is determined by local experiences, the variety of grain, individual necessities, and other influences.

The prevention of smut and rust is achieved by steeping the seed in or moistening it with a solution of bluestone, or with strong brine. If bluestone is used a quarter pound is dissolved in water enough to moisten a bushel of seed. When brine is used, the light grains, weed seeds, &c., are skimmed off as they rise, and some persons dust the seed with slaked lime to destroy the fungus germs.

**Rye.**—Early seeding is especially desirable for this crop, when it is to be pastured or to be cut green for feeding. Those who have found the advantage of such pasture in early spring will not hereafter willingly do without it. To land not in good plight, some fertilizer ought to be added, as bone-dust, super-phosphate, or a good dressing of barn-yard manure. The early sowing promotes stooling, which is desirable where the rye is to be cut for soiling. Of seed, from four to five pecks per acre is sown for the grain; when the rye is to be cut green, sow two bushels.

**Meadows.**—A light dressing of barn-yard manure makes a good top-dressing, and the earlier applied the better. Where land is to be seeded down with timothy alone, sow half a bushel of seed to the acre, and give a liberal application of fine bone or super-phosphate.

**Curing Corn Fodder.**—Fodder sown in drills is best cured by cutting and allowing to dry for a day or two in the ground, then piling thickly against the fences, or putting up in moderately-sized shocks.

**Tobacco.**—We urge again "priming and topping" to make a first-class article. Twelve or fourteen leaves under that system, timely and judiciously done, will make more pounds per acre and of better quality than the old system of twenty leaves. Under the old practice all the bottom leaves are lost by being weathered. The time for cutting and housing is now at hand. Let the master see to it that it is done with care. Frequent experience has often demonstrated to us that the smaller the quantity of tobacco carted to the house the better the quality. Tobacco when bruised slightly cannot cure bright.

Keep the suckers down by all means, and the worms off.

**Manure Making** ought not to be neglected, and the materials wasting on the farm, often hurtful, should be saved and made to contribute to the fertility of the land. Litter and wastes from the stable, slops from the house, road scrapings, &c., ought all to be composted with manure alternating between the layers.

**Tops and Blades** ought to be saved carefully and put away as soon as cured.

**Live-Stock** —Do not let any press of business interfere with regular feeding, than which there is no more important condition to good health. The same is true of watering.

NOTE.—By some unfortunate accident the MS. of our regular notes for the month in the *Orchard and Fruit Garden* were mislaid in the printing office, and the loss discovered too late to be repaired by communicating with the editor.

## Drilling vs. Broadcasting Grain.

An experienced cultivator gives the following as his report of the advantages of the use of the drill:

Most farmers are well apprised of the importance of drilling wheat, but on account of the extra time for preparing the land and the extra labor of sowing, they generally adopt the old mode of broadcasting. In order to meet this objection, we adopted a plan in the autumn of 1873 by which wheat may be effectually drilled without a machine, and by the usual mode of broadcast sowing with exactly the same amount of plowing.

The only additional labor used on the drilled wheat was one furrow run between the rows during the month of March, when in the joint, with a sub-soil plow. The helve of this plow being a bar of iron, threw up no dirt on the wheat, but answered the double purpose of draining the land and opening it that the atmosphere might penetrate, and thus prepare additional food for the plant. The good effect was very perceptible.

We sowed another plot by its side of the same size and fertility, with double the amount of seed. The drilled wheat grew off faster, and was some six inches taller, with much heavier heads than the broadcast. Another plot was fertilized with 300 pounds per acre of ammoniated super-phosphate.

The broadcast plot made at the rate of 414 pounds of grain per acre (6.09 bushels,) the straw weighing 836½ pounds; that sown in the drill made 517½ pounds of grain (8.62 bushels) and 812 pounds of straw.

By this simple plan, in a field of ten acres, we would have saved five bushels of seed wheat, allowing one bushel for the broadcast and half a bushel for the drilled, and have made 26½ bushels more.

The fertilized plot produced 12.17 bushels of grain, equal to 724½ pounds, and 979 pounds of straw per acre.

Our impression is that one peck of seed thus sown will do as well as a larger amount, particularly if a roller is used to make the ground more compact, and bring the wheat falling into the bottom of the furrows nearer the surface.

In the estimate of profit and loss in this experiment, we should take into consideration the exhaustion of the soil of the mineral food. Thus, in contrasting the first and second plots, while the drilled wheat made 103½ pounds more of grain than the broadcast, it actually took off 24½ pounds more of straw. Then, for every bushel of grain made on the broadcast system, there is carried off 137 pounds of wheat straw, while for the same amount of grain when drilled there is carried off 99 pounds of straw. This, then, involves considerable more labor in cutting, reaping, hauling and threshing for the amount of grain obtained, and takes off about 35 per cent. more of all the valuable substances making up agricultural plants.

Recent experiments in England show that thin sowing of wheat in drills is much more productive than thick sowing. By special culture on small plots, having one grain in the hill, a crop at the rate of 108 bushels per acre has been produced, and another of 162 bushels.

## Home Department.

### Coming Home—a Visit to a Creamery.

The cream of "outings" seems to me to lie in the home-coming. No matter how eagerly we set out in search of pleasure or pastime, nor how successful in finding them, there is a crowning joy in reserve, which we begin to appreciate as soon as our faces are turned homeward; gradually during that portion of our journey one home interest after another steals in upon our thoughts, although they may have been unheeded during the whole period of our absence until then, and all at once we become wonderfully exercised as to our belongings and more than kindly disposed toward our old cares and responsibilities. The pleasure heightens as we approach the journey's end, but the supreme moment is when we behold the glad faces waiting to greet us, and know that all dangers incident to travel are past and the home circle unbroken during our absence.

This coming back to home and "common doings" proves the efficacy of our outgoings; if we bring to them recuperated strength and spirits, as we should, and have gathered some knowledge of the ways of the world beyond our usual limited horizon, we are the gainers, mayhap, for all time. To complete the simile we might call this the *butter* of "outings."

My thoughts turn naturally and persistently to *cream* and *butter* since visiting a creamery, which was accomplished during a supplementary visit to Elmira. A friend, furnished with a letter from one of the proprietors, which would insure us every facility for observation and information, and himself eminently qualified to make the expedition a satisfactory and enjoyable one, with his "democrat" and pair, took our party about ten miles out of the city to one of the largest and best-conducted creamerys in that vicinity. My first impression, I must confess, was disappointing; almost every kind of business in these days, if done on any scale of importance, calls for correspondingly important surroundings: but here was a plain wooden structure without paint or whitewash, as bare and barren as one could well imagine, and only 32 by 80 feet in dimension. My respect for the establishment grew rapidly, however; from the moment we entered the door we began to see somewhat of the capability of this seemingly insignificant affair. The long cheese troughs shining in the glory of their cleanliness—as did everything else inside of the building—were the first to greet us; farther on we came to where the butter was being worked. The arrangement for doing it was remarkably simple, and the facility with which one man would take forty or fifty pounds and manipulate it into a clear, bright yellow mass, nicely salted and apparently ready for use, in a very short time, was rather exasperating to any one who knows of the shoulder-aches the working of a few pounds ordinarily produces. The operator

would hardly have apologized to a Marylander for the necessary use of his hands in turning this mass of butter from time to time had he known how common the practice is among us of using the hands throughout the process,—a practice which, although not of necessity uncleanly, is very liable to be so, and the warmth of the hand must have a bad effect upon the butter. This butter, however, which seemed so perfect already, was not finished yet, but set aside in the cooling department, to be worked again before packing. When, however, it was finished and packed, it was not only beautiful to look at, but the flavor was perfect. It goes to the market as "gilt-edged," and no doubt much of it is in the Philadelphia market in the form of "fresh print." I never have tasted anything superior and rarely any equal to it. This room occupied about two-thirds of the whole building. There was another at one end where, when the doors were opened, there seemed to be a floor of water, with milk-cans floating in it. The springs were gathered into a space to suit the apartment, and had a smooth gravelly bottom, with the water about two feet deep, crystal clear; floating in this the milk was kept at a uniform temperature of 65°. The cream was kept standing the requisite time in the same room, and here also were the firkins of butter after they were packed and that which was waiting for its second working. When we had seen all the operations, the obliging manager said he must now show us the little man who did most of the work; in a small chamber adjoining the main building he displayed, with much satisfaction, a steam engine of six-horse power, and which, he said, required no more coal than a parlor stove, with which the churning, pumping of water, pressing of cheese and general cleaning was done, and which did not cost half the price of one of our slaves of by-gone days.

Those churns were a curiosity. They were shaped much as the old-fashioned upright churn, but as large as a barrel, and the dasher was plain and smooth, nearly as large as the inside of the churn, but no holes in it, and slightly concave on the under side. He claimed great advantage for this construction of the dasher; but, of course, it requires the force of steam to operate it. In the loft above were the rows of cheese that were waiting for age to ripen them. In this moderate space and with these simple arrangements, the milk from 300 cows was disposed of, making daily about 150 pounds of butter and 200 pounds of skim-milk cheese, besides feeding 100 pigs and a few calves from the buttermilk.

I have been particular in describing these most prominent features of the working of this manufactory, because I dare say many of the readers of the *Farmer* may be as ignorant in regard to them as I was myself, and it may also be interesting to them in forming some estimate as to how such things might be accomplished among ourselves. I asked the gentleman to whom I was indebted for this opportunity, what the construction of the building and all its furnishing, including engine, had probably cost. He said he thought about $1,200; and being a business man, his estimate is probably pretty correct. I cannot see, therefore, in a neighborhood where springs and pasturage are favorable, why a community should be so slow in attempting such things. Of course it requires skilled agents to carry it out, but the work seems much easier and more pleasant than most of the usual farm work; therefore, I should suppose there might, in most places, be found a sufficient number to learn it and make it their occupation. The cheese part I do not like, because I don't like the making anything of inferior quality, and skim-milk cheese can't well be otherwise. Doubtless there are many who do not agree with me, since there seems to be a market for it. I hope the time will come when Marylanders will enrich themselves, as well as their soil, by giving more of their attention to the raising of cattle and such produce as they furnish.

CERES.

## Milk and Bread.

BY MRS. J. B. MOORE BRISTOR.

Many parents give their children coffee and tea. Mothers have said to me exultingly: One of my children has always taken coffee since she was a baby, and she is healthier than the others who take milk. Wait until that child's constitution goes through some severe test,—some long or sharp attack of illness. And as to city milk, where can you find the article pure? Children are probably much better without it. The adulteration of milk is a matter which calls for the strictest constant investigation of the government and the heaviest penalties. A friend tells me that in Germany,—in a city where the examination of all milk brought to market is made daily, and the punishment a fine of fifty dollars,—the adulteration goes on steadily. Well, then, let the fine be five hundred and a long imprisonment. The health, the sound physique of the rising generation, ought to be dearer to parents, guardians and the government of a people than any other consideration. And the laws should be framed and altered until this result, as far as possible, is attained. It was distressing sometime ago to read of a whole family fatally poisoned in New York by the filthy water tainted from a drain which had been used in watering milk. The parties poisoned were poor, and the milk was offered at the wonderfully low price of 3 cents per quart. Where at ten cents it is well nigh impossible to secure it pure, how much less at three? But the poor people did not think of that. Milk, at its usually high price, was probably a luxury they did not indulge in, and they eagerly seized the opportunity thus offered, and paid for it with their lives. Most city people have no idea what good milk is. How many times I have been directed to such and such a milk-man as having "elegant, splendid milk," to find the water so predominant, or the chalk or chemical substances, that I dismissed the vender in disgust, being assured "I was the first person to whom his milk had not given entire satisfaction." Of all food for children, pure milk, if one can get it, is the best. I have two children, and could I get absolutely pure good milk, would

gladly give them half a gallon or more daily. It is one of my keenest regrets that I cannot get it. I have repeatedly tried, and find it good for a few times, then the dealer began the usual adulteration, and regard for my children made me give it up. Not being able to get it, I use for them, winter and summer, oatmeal, varied in its preparation.

The ordinary Scotch, Irish, Canadian or American oatmeal is too coarse a food for summer, some may say, and has heating properties not desirable in hot weather. But the N. Y. American Breakfast Cereal Co. prepares an American article of steamed oatmeal, in which, by some scientific process, the oily heating properties of the oatmeal are removed, while the nutritious ones are preserved. It is quickly cooked, and, therefore, suited for warm weather. If your children weary of oatmeal as mush, it is exceedingly sweet baked in a griddle cake. This summer I have bought but one baker's loaf, and that I could not eat. In the hottest days, a cake prepared of one cup of coarse yellow corn meal, one cup of oatmeal, a little salt, baking powder and water, cooked on the griddle, has been my supply of bread for breakfast and supper. A little flour added improves it, and also a teaspoonful of brown sugar—the raw, pure New Orleans, not the poisoned stuff known as refined.

## How to Keep Boys on the Farm.

Farming, when well conducted, is a good and pleasant business. If our sons and daughters do not like it, there is almost always some good reason for their dislike. If you want to make your son like his business, place him in responsible places, trust him, consult him about the work he has to do. Let him do a part of the thinking. Give him nearly the sole care and responsibility of something on the farm,—the fowls, the pigs, some of the stock, some of the crops, or a garden or part of it. Suppose he does do everything just as you would; advise him. It is much better that he should fail while he is yet young and has time to learn under your training, than not to try or fail till he gets into business for himself. By treating children in this way, they will take more interest in their work and be much more likely to succeed when they start for themselves. Do not make slaves of your children. Let farming be conducted on thorough business principles, as manufacturing and commerce are and ever have been, and it will become more attractive both to boys and men. FRIEND'S INTELLIGENCER.

## Skeleton Leaves.

The following is a simple method of preparing skeleton leaves, and is decidedly preferable to the old and tedious method of maceration, as it is quite as efficient and not at all offensive. First dissolve four ounces of common washing soda in a quart of boiling water; then add two ounces of slaked quicklime and boil for about fifteen minutes. Allow the solution to cool. Afterward pour off all the clear liquor into a clean saucepan. When this liquor is at its boiling heat, place the leaves carefully in the pan, and boil the whole together for an hour, adding from time to time enough water to make up for the loss by evaporation. The epidermis and parenchyma of some leaves will more readily separate than others. A good test is to try the leaves after they have been gently boiling for an hour, and, if the cellular matter does not easily rub off betwixt the finger and thumb beneath cold water, boil them again for a short time. When the fleshy matter is found to be sufficiently softened, rub them separately, but very gently, beneath cold water, until the perfect skeleton is exposed.

The skeletons at first are of a dirty white color. To make them of a pure white, and, therefore, more beautiful, all that is necessary is to bleach them in a weak solution of chloride of lime—a large teaspoonful of chloride of lime to a quart of water. If a few drops of vinegar are added to the solution, it is all the better, for then the free chlorine is liberated. Do not allow them to remain too long in the bleaching liquor, or they will become too brittle, and cannot afterwards be handled without injury. About fifteen minutes will be sufficient to make them white and clean looking. Dry the specimens in white blotting-paper, beneath a gentle pressure. Simple leaves are the best for young beginners to experiment on. The vine, poplar, beech and ivy leaves make excellent skeletons. Care must be exercised in the selection of leaves, as well as the period of the year, and the state of the atmosphere when the specimens are collected; otherwise failure will be the result. The best months to gather the specimens are July and August. Never collect specimens in damp weather, and none but perfectly matured leaves ought to be selected.—*Young Scientist.*

## Culture of the Cherry.

Two kind are reliable, the Early Richmond and Kentish, both of the same family, and really the most valuable of them all for culinary purposes. They are excellent in pies and puddings, to make "bounce," to "preserve" or dry for winter use, while nearly all the rest are used as a desert fresh from the trees. But for this purpose they are justly prized. A full tree of cherries is a beautiful sight when of the large varieties, but it is enjoyed only once in four or five years in this section.

One peculiarity in regard to the cherry is its whimsical behavior. The present season from some half dozen trees we did not obtain half a dozen pounds; while upon some of the trees in the immediate neighborhood there were full crops of large and beautiful fruit. Formerly we succeeded with the cherry regularly, while frequently all around us there were very few. We had six trees, twenty years old, of different varieties, standing from within twenty to thirty feet of each other, in full bearing, and to all appearances in perfect health through the summer, all of which died during one autumn, without any apparent cause, and without, so far as we could learn, a precedent. We believe that the cherry does better in grass lands, where it will not have its roots disturbed, or its trunk damaged by the swingletree of the plow in cultivating, than in constantly cropped land.—*Germantown Telegraph.*

# The American Farmer.

PUBLISHED ON THE FIRST OF EVERY MONTH

By SAML. SANDS & SON,

*At* 128 *W. Baltimore Street, (sign of the Golden Plow,) Baltimore, Md.*

Wm. B. Sands, Proprietor.

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## BALTIMORE, SEPTEMBER 1, 1879.

### The Baltimore County Fair.

The fair of the newly-formed Agricultural Society of Baltimore county, which takes place on September 9th, 10th, 11th and 12th, at Timonium, a point about 12 miles north of Baltimore, on the Northern Central Railway, promises to be an unusually full and interesting one for this section. The grounds are commodious, well arranged and very accessible from all parts of the county and State. The trains of the Northern Central Railway run direct into the grounds,—thus insuring ample accommodation for visitors from Baltimore city and those coming by connecting roads.

Among the farmers and the people of the county general interest is awakened as to the fair, and a large assemblage is expected and a comprehensive exhibit of the products of the county.

### The Superior Grain Drill.

We call attention to the advertisement of Messrs. J. C. Durborow & Co., of this drill, for which many advantages are claimed, all of which are clearly set forth in their well-displayed advertisement, and the most important of which are the absolute freedom from bunching of the grain and the regularity of sowing.

The school of Mr. Henry C. Hallowell, at Sandy Spring, Md., is one which we can heartily commend for its methods and surroundings. The principal has large experience and his assistants are capable and talented.

### Grange Objects.

The grange was formed for mutual education, elevation, assistance and sympathy among farmers, for an interchange of thought, observation and experience, so that each may be benefited by the thought, observation and experience of all. Every one might bring something to read or to be read, ask some questions, give some item of his own experience new to the others if not to himself, and this at every meeting. If each member considered himself or herself responsible for the interest of every meeting, what a centre of attraction our society would be, and what a vim it would add to our gatherings!

Farming is not such a finished, dead and buried science that there is nothing new to be said about it. There have been wonderful improvements made within the last few years, and who can say the future will not bring out still more wonderful things? Farmers, many of them, have been behind the times, attending to their own business, raising their crops, while sharpers made it their business to watch the markets, buy at the lowest price and sell at an advance,—thus making money by their brain labor, often without lifting a finger, while the farmer perhaps loses or is barely paid for his hard labor, when, had he been better informed, he might have had the whole profit himself.

We are instructed to adorn our homes, to make them attractive to our children, to buy more books, to take more newspapers and magazines, so that we may compare favorably as a class with other classes. Now, this cannot be done without money, and if our means are limited I see no way of inflating the currency in a safe and perfectly legitimate way except by purchasing our supplies at wholesale prices. We are assured we can do this at fifty per cent. discount; if so, and I have no doubt of it, it would have the same effect as making fifty cents worth a dollar to us. As to quality, the purchasers having a direct interest in the articles for their own use, would certainly aim to obtain the best. It is merely a question of putting fifty per cent. profit in the dealers' pockets or our own. If we can save from ten to twenty dollars each family per year, which is, I think, within reasonable bounds, that would be from two to four hundred dollars per year for a grange, which is certainly worth a little exertion. If any of you are in such easy circumstances that you do not feel the need of coöperation, you could obtain an article of as good a quality through the grange, and have half your money to bestow on charitable objects, which abound on every side. I do hope all will feel it their duty and pleasure to unite in this work, which is intended equally for the benefit of each and every member of the grange and for the exclusive benefit of none. A grange without discussion of subjects, without the reading of selected pieces or essays, without the interchange of ideas, experience and observation, and without coöperation in financial affairs, is like the frame-work of a house—useless unless finished and furnished. Our grange will be just what we make it; let us make it a decided success.

## Contents September No.


How to Make Wheat, by Dr. Thos. Maddox.295
Wheat, by Deer Creek Farmers' Club.....296
Cultivating Wheat, by John A. Jones.....298
The Loss in Saving Wheat.....300
Our French Letter.....300
Cutting and Curing Fodder-Corn.....301
Beet-Sugar in Europe.....302
Jersey and Guernsey, their Cattle and how they are kept.....302
The Darlington Dairy.....305
Soundness of Horses, by D. Lemay, V. S.....305
Summer Cattle-Feeding.....307
Oxford-Down Sheep.....307
Engraving of Oxford-Down Yearling Lambs.308
Cattle in United States.....309
Keeping Swine in Good Health.....309
Remedy for Engorgement with Meal.....310
Poultry Yard.....311
Horticulture.....312
Pleasure Grounds and Greenhouse, &c..313, 315
Fruits, &c.....316, 317
Vegetable Garden.....318
Keeping and Marketing Honey.....319
The Gunpowder Club.....319, 320
Work for the Month.....321
Drilling vs. Broadcasting Grain.....322
Home Department.....322, 323, 324
Culture of the Cherry.....324
Editorial Notes, &c.....325


## Baltimore Markets—September 1.

**Breadstuffs.**—*Flour*—In fair demand, but not specially active. We quote: Howard Street Super $2.85@$3.50; do. do. Extra $3.75@4.75; do. do. Family $5@5.75; Western Super $2.85@3.50; do. Extra $3.75@4.75; do. Family $5@5.75; City Mills Super $2.75@3 25; do. do. Extra $4@4.75; do. do. Rio brands Extra $5.62@5.75; Fancy brands $6.50; Extra $6.25; Fine $2 50@2.75; Rye Flour $3.50@$3.75; Corn Meal, City Mills ₩ brl., $2.55; do. do. ₩ 100 lbs., $1.20@1.25; do. Western do. $1.15@1.20.

**Wheat.**—Quiet and heavy. We quote: Southern Fultz $1.04@1.08; do. long-berry $1.08@1.13; Md. No. 1 red, spot, $1.10; Western No. 3 red, spot, $1.03¾@1.04; do. No. 2 do. spot $1.08¾; do. do. October delivery $1.09¾; do. do. November do. $1.09⅞.

**Corn.**—Southern dull and white lower; yellow steady. We quote: Southern white 57 cts.; do. yellow 48 cts.; Western mixed spot 46½ cts.; do. October delivery 47@47¼ cts.; do. November do. 47⅜@47⅝ cts.

**Oats.**—Nominal at following quotations: Western mixed 30@31 cts.; do. bright mixed 32@32½ cts.; do. white 33 cts; Southern 31@33 cts.

**Rye.**—Very little offered, but the market is steady, and we still quote fair to prime as ranging from 60 to 63 cts. ₩ bus.

**Mill Feed.**—City Mills we quote at $13.50@14.00 for Brownstuff, and $14.50 for Middlings ₩ ton, and Western Bran at $12 ₩ ton, the last sales being at this figure.

**Hay and Straw.**—Hay continues firm under comparatively light receipts, with the demand active for prime, and Straw steady. We quote: Choice Cecil County Timothy $16.00; Fair to prime Md. and Pa. Timothy $14.00; Mixed Hay $13@14; Clover do. $11@13; Wheat Staw $6.00@7.00; Oat do. $8.00@9.00; Rye do. $11.00@12.00.

**Provisions.**—A good demand and a decidedly strong market. We quote: Bulk Shoulders, packed, 4½; do. L. C. Sides 5¼; do. C. R. Sides 5¾; Bacon Shoulders 4¾; do, C. R, Sides 5¾; do. Hams, Sugar-cured, 11¼@11¾; do. Shoulders do. 7; do. Breasts 7¼; Lard, Refined, tierces 7; do. do. tubs 7¼ cts.; Mess Pork, new, ₩ brl. $9.75.

**Butter.**—Choice fresh stock in active demand; lower grades dull. We quote: N. Y. State, prime to choice 15@16; N. W. dairy packed 12@14 cts.; Ohio and W. Va. prime 9@11 cts.; do. good 8 cts.; do. fair to medium 6@7 cts.; nearby receipts 10@13 cts. *Cheese.*—Moderate demand. We quote: Eastern choice 6¼@6¾; do. good to prime 5½@6; Western full cream 5@6; do. skimmed 2@3 cts. *Eggs.*—Fresh we quote at 15@16 cts. for Western, and 16@17 cts. for nearby ₩ dozen, with the market firm and active. *Poultry.*—There is a good supply of young Chickens, with market dull at 10 cents ₩ lb. Old fowls continue in moderate receipt, with fair demand at 9 cts.

**Dried Fruits.**—Apples, bright quarters, 2@3 cts.; do. sliced, 4½@5 cts.; do. fancy do. 5½@6 cts.; Peaches, unpeeled quarters, 3@4 cts.; do. halves 4½@5 cts.; common to fair peeled 3@7 cts.; do. bright do. 9@11 cts.; Blackberries 7 cts.; Whortleberries 10@11 cts.; Raspberries 27@28 cts.; and pitted Cherries 16½@17 cts. ₩ lb.

**Produce.**—We quote as follows for the articles named: Apples, new, ₩ brl., 50 cts.@$1.25; Beans, New York medium, ₩ bus., $1.45@1.50; Peas, black-eyed, ₩ bus., $1.15@1.18; Potatoes, new, ₩ brl., $2@2 25; do. Sweet, new, ₩ brl., $1.50@2; Onions, ₩ brl. $2.75@3; Beeswax, ₩ lb., 20@21 cts.; Ginseng, ₩ lb. 80@85 cts.; Seneca Root, ₩ lb., 35 cts.; Virginia Snake, ₩ lb., 15 cts.; Wool, unwashed, ₩ lb., 24@26 cts.

**Live Stock.**—*Beef Cattle*—The offerings are inferior and the market very slow. Prices range as follows: Best Beeves $5 12@5.50; first quality $4.75@5; medium or good fair quality $3.12@4.25; ordinary thin Steers, Oxen and Cows $3@3.12; extreme range of prices $2@$3.50; most sales were from (₩ 100 lbs.) $3.75@4.50. *Milch Cows*—But little doing; the supply is in excess of the demand. We quote at $18@40 ₩ head, as to quality. *Hogs*—We quote rough Sows and Stags at 3¾@4¼ cts. and the better grades at 5¼ cts. ₩ lb. net, few selling at the latter price *Sheep*—The demand is not very active. We quote butcher Sheep at 3¼@4¼ cts.; stock Sheep at $1.25@2.75 ₩ head. Lambs 3½@5 cts. ₩ lb. gross.


ROCHESTER TREES
COMMERCIAL
NURSERIES

Hardy Trees, Shrubs, Vines and Plants, per dozen, 100 and 1,000. New Spring PRICE-LIST now ready, and sent FREE to all applicants. ORNAMENTAL CATALOGUE [Illustrated] 10 cents. Fruit Catalogue 6 cents. Both free to customers. Fine, thrifty stock and low prices. Address, W. S. LITTLE, Rochester, N. Y.

Fruit & Ornamental TREES
Large Stock. Low Rates.
Standard and DWARF
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NIAGARA NURSERIES. Established 1839.

ESTABLISHED 1849.

Morris Nurseries,
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Fruit, Shade & Ornamental Trees, Evergreens,
VINES, ETC.,

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120 Acres Under Cultivation.

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We have the pleasure of offering the following **NEW PEACHES**:—

**Waterloo.** The largest and finest very early peach.

**Conkling.** A superb yellow-fleshed peach, ripening about a week after Crawford's Early.

Also, the following **NEW GRAPES**, originated by us from seed some twelve years ago.

**Monroe.** A black Grape, ripening about same time as Hartford Prolific.

**Rochester.** A purple Grape, ripening here about 1st September.

**NEW PEAR.**

**Frederick Clapp.** Above medium size, very juicy, melting, flavor sprightly, rich and aromatic, quality *best*, pronounced decidedly superior to Beurre Superfine.

**NEW STRAWBERRY.**

**Sharpless Seedling.** This variety has fruited upon our grounds during the past *four years*, and we consider it *one of the Largest and Best Strawberries now in cultivation.*

Priced Catalogues sent as follows: No. **1**, Fruits, with colored plate, 15c.; plain, 10c. No. **2**, Ornamental Trees, etc., with plate, 25c.; plain, 15c. No. **3**, Greenhouse, free. No. **4**, Wholesale, free No. **5**, Catalogue of Roses, with beautiful colored plate of choice new Roses, 10c.; plain, *free.* No. **7**, Catalogue of Strawberries, with colored plate, free. Address,

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# SOUTH-DOWN SHEEP

Rams bred from importations from LORD WALSINGHAM and HENRY WEBB.

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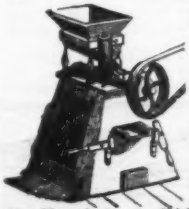

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# STEEL,

It is adapted to all kinds of horse-powers. It grinds all kinds of grain rapidly. It is *simple, cheap and durable.* ☞ Send for a Descriptive Circular. Address

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I have for sale a few **Cotswold Yearling Rams,** sired by a choice imported Ram; a lot of Native Ewes in lamb by Pure-bred Cotswold Rams, and a lot of Berkshire Pigs. Prices to suit the times.

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A few fine Ram Lambs, that promise to shear from 15 to 18 lbs., and several Yearlings, sired by my imported Ram, "DUKE OF GLOUCESTER," with a record of 24 lbs. fleece and 350 lbs. carcass. **EDWARD C. LEGG,**

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**$777** A YEAR and expenses to agents. Outfit Free. Address P. O. VICKERY, Augusta, Maine.

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A few COTSWOLD SHEEP, all ages, Buck, Ewes and Lambs.

Also several SHORT-HORN BULL CALVES, very fine, can be entered in Herd Book.

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**Timonium, Md.**

(12 Miles North of Baltimore,)

## September 9, 10, 11, 12.

**GRAND DISPLAY** of Fine Cattle, Horses, Sheep, Swine, Poultry, Farm and Garden Products, Home Manufactures, Implements and Machinery, &c. The Agriculturists, Horticulturists, Stock-Breeders, and manufacturers of our sister counties are cordially invited to exhibit their products and wares.

Competition open to all. On Thursday Sept. 11, at 1 P. M., Hon. WM. T. HAMILTON, of Washington Co., Md., will deliver the annual address.

☞ TRIALS OF SPEED DAILY. ☜ ADMISSION 25 CENTS.

Trains of Northern Central Railway run direct into grounds. Round-trip tickets from Baltimore, (including admission,) **50 CENTS.** Correspondingly low rates from all points on connecting roads.

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New and Beautiful Designs—Best Quality

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**For Wood or Coal.**

**THREE SIZES—No. 7, No. 8, No. 9.**

The above cut represents the **SUPERIOR COOK**, a first-class Stove in every respect, with all the latest improvements. It has a large oven, is a PERFECT BAKER, and cannot be excelled in its heating and cooking qualities. Every Stove is guaranteed to give entire satisfaction.

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**Gives Butter the gilt-edge color the year round.** The largest Butter Buyers recommend its use. Thousands of Dairymen say **IT IS PERFECT.** Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. **WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.**

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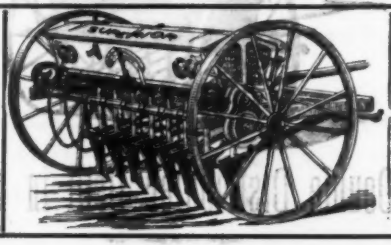
# The KING of Grain Drills!

## The "Superior"

# Grain



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## The Only Perfectly Adjustable Force-Feed Drill in the Market.

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**ABSOLUTELY NO BUNCHING OF THE GRAIN. The change from small to large quantity made instantly, without stopping the team. The speed of the Feed Cups is always the same for large or small quantities, thus insuring regular sowing.**

THIS DRILL has a continuous wrought-iron cold-rolled Axle, fastened rigidly to the Frame, and it DOES NOT REVOLVE with the wheels, but each wheel revolves independently,—thus giving a long steady bearing, and is FAR SUPERIOR to the revolving Axle.

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**EVERY DRILL FULLY WARRANTED.** Send for Circulars and Price-List. We also keep always on hand a fine line of **CIDER MILLS** and other AGRICULTURAL IMPLEMENTS.

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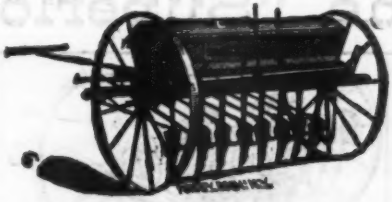
**THE OLD AND RELIABLE**

# BICKFORD & HUFFMAN

# GRAIN  DRILL.

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**Instantly and by a Single Movement** changed from a drill especially adapted to seeding the fine heavy grains to one especially adapted to sowing the coarse bulky grains.

**THE BONANZA GRASS SEEDER.**

The only Seeder readily adjustable to work in front or rear of Tubes with equal facility for work in either position, securing uniformity and certainty of distribution of all grass seeds, large, small or mixed.

**THE FERTILIZER ATTACHMENT,**

The fundamental principles of which have been demonstrated by our manufacture of the past **quarter of a century,** with the **improvements of the last year,** has proved its eminent superiority over each and every competitor, readily and satisfactorily distributing Fertilizers whose composition or condition rendered their distribution impossible by any other device.

**THE COMMON-SENSE SPRING TUBE**

Is thoroughly practical in its operation, simple in its construction, possessing all the endurance and wearing quality of the Pin or Peg Tube. Using no gum or rubber in its construction, it is impervious to weather or exposure, and if accidentally broken can be repaired at your homes, saving the cost of transportation and delay.

☞All these Drills are furnished with Neck Yoke, Whiffletrees, Land Measurer and the Davis Patent Tube Shifter, for which an extra charge is made on all other Drills using it.

**The Superior Manufacture and Finish of these Drills are too well known to require mention here.**

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# VEGETATOR

We ask the Farmers to measure the wheat harvested per acre when the *VEGETATOR* has been applied, and compare the yield with that from other manure.

**WE AIM FOR THE GRAIN,**

And no other brand can surpass us in that respect. Apply one-quarter less per acre to produce as good a result.

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# 1879 Wheat Seeding. 1879

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# "Excelsior" and "Ammoniated Phosphate"

Were *originated*, and since 1864 a member of the late firm of **J. J. Turner & Co.,** (dissolved March 19, 1878,) relying upon his experience and personal reputation, hitherto acquired in the uniform excellence of these FERTILIZERS as manufactured by him, offers them *in his own name* to the agricultural public.

Having secured the *works of the old firm*, **111 McELDERRY'S WHARF,** with the complete machinery, *specially constructed for their uniform manipulation*, he will continue the manufacture of

## "EXCELSIOR" and AMMONIATED PHOSPHATE

On his own account, with his office adjoining the works, where he will be pleased to see his friends and patrons, assuring them that the FERTILIZERS manufactured BY HIM shall be of the *same uniform and high standard quality* as sold by the *old firms* since their introduction.

## J. Q. A. HOLLOWAY,

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The above are the most concentrated FERTILIZERS ever offered to the Farmer—combining all the stimulating qualities of Peruvian Guano and the ever-durable fertilizing properties of Bones, in fine dry powder, prepared expressly for drilling, and it is the universal opinion of the Farmers of Maryland and Virginia, after OVER TWENTY YEARS' experience in the use of the **Excelsior Manufactured by me,** that an application of 100 pounds is equal in its effects to 200 pounds of any other Fertilizer or Guano, therefore fully 50 per cent. cheaper. *With my present advantages and superior facilities for Manufacturing, I challenge competition with any Fertilizer sold in the United States in QUALITY, MECHANICAL CONDITION AND PRICE.* By strictly adhering to my Original Formulas, using only the most concentrated materials, and *superintending in person their manufacture,—as for the past twenty years,*— **UNIFORM QUALITY IS GUARANTEED.**

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HAGERSTOWN Grain, Seed AND Fertilizer Drill!

Farmers' Friend Grain, Seed AND Fertilizer Drill!

We present these well-known and popular Drills, after another season's trial, with renewed confidence, for public favor. They are strong and well built, of the best material, and distribute the Grain, Seed and Fertilizer with an accuracy unexcelled.

## THE OLIVER CHILLED PLOW,

A new departure and great improvement over all other Plows, embracing new princip'es, which place it far in advance of all other Plows. It has superseded all others wherever tried in competition. Over 300,000 now in use. Warranted to do good work. Scour in any soil; run lighter than any Plow in use; run steady with one, two or three horses, and not choke or corrode; work well in dry or hard ground, and give good satisfaction.

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# Blood and Bones

OF THE

## Cattle Slaughtered in New York.

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The fertilizers we manufacture and sell under the "AMERICUS BRAND" are made from the blood, refuse butchers' offal and bones, taken daily from our slaughter-houses in New York City. These materials are manufactured in a fresh condition by the most improved process, by which all the valuable fertilizing properties are saved and concentrated. We treat in our works weekly the refuse from **Four Thousand Cattle, Eight Thousand Sheep.**

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It has stood the test of time of 37 years in England, Ireland, Scotland, France and Germany, and pronounced the best Food for maintaining the Health of all Horses, Cows, Sheep, Hogs and Poultry ever known in the world; and, upon trial, it will exalt its own merits. **AND EVERY PACKAGE IS GUARANTEED To CONSUMERS.** It is the third of the cost of all Condition Powders, and contains nothing in it but what any **BEAST** can take inwardly, without a particle of Danger or Injury. A sure cure for ailments arising from the Stomach. **PACKED IN 6-LB. BOXES. PRICE $1.00. FOR SALE BY ALL DRUGGISTS AND FEED DEALERS.**

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JOHN S. KNAPP—Sir: The London Horse and Cattle Food I have made a test of, and find it to be as good, if not better, than any other Food now in use. I heartily recommend it to the public.

Very respectfully, JOHN HOOD, Stable Manager Ad. Ex. Co.

CUMBERLAND VALLEY, PA., APRIL 18, 1879.

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Respectfully, JOHN F. GROWDON.

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Are prepared, with great care, from medical plants, are *coated with sugar* that they may be taken by the smallest child and upon the most delicate stomach; are intended especially to act upon the Liver—thereby relieving all such diseases as COSTIVENESS, HEADACHE, PARALYSIS, DYSPEPSIA, COLDS, JAUNDICE, and all diseases of a Bilious origin. No better evidence can be offered in favor of these Pills than the very fact that where their ingredients are known to family physicians, they are using them in their private practice. We append the following from one of our most prominent physicians:

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DR. GILPIN—After carefully examining the formula of your Sugar-Coated Pills, I feel it but justice to say, that the combination is certainly perfect, and comprises the only remedies I ever believed were the proper ones to be used in diseases of a bilious origin. I shall take pleasure in recommending them not only to my patients, but the entire medical profession. Yours truly, J. M. WISTAR, M. D.

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**Read the Analysis:**

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Bone Phosphate, Soluble..... " 10 to 12 "
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## SUPER-PHOSPHATE FOR ALL CROPS.

It is made of the best and most concentrated materials, possesses all the virtues of PERUVIAN GUANO and BONE-DUST combined, and is well adapted to Wheat, Corn, Oats, &c., producing abundant crops where all others fail. Having a large percentage of Soluble and Precipitated **Phosphoric Acid and Ammonia,** it is without doubt **the richest Commercial Fertilizer in the country.**

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Made only of Slaughter-house Bones, contains a larger percentage of AMMONIA and BONE PHOSPHATE LIME than any other brand in the market.

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*For the Detection of any Impurity in our Manufacture of Bone.*

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## Super-Phosphate of Lime

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# DISSOLVED BONE,

MADE OF PURE SLAUGHTER-HOUSE BONES

**It is richer in Soluble Phosphoric Acid and Ammonia** than any similar article in the market.

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Nitrate Soda, Dried Blood,
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the most concentrated and DESIRABLE WHEAT-PRODUCER in the market. We therefore offer it again to our patrons this fall, as also

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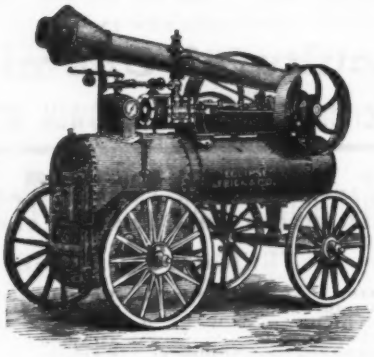

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We have now on hand a large stock of No. 1 PERUVIAN GUANO "LOBOS," with the following analysis guaranteed:

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| **Ammonia,** | **6 Per Cent.** |
| **Bone Phosphate of Lime,** | **40 " "** |
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The GUANO is perfectly dry and free from lumps. Purchasers will please see that the bags have Hobson, Hurtado & Co.'s name stamped on them, they being the only agents of the Peruvian Government.

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# PURE DISSOLVED RAW BONE

Is thoroughly vitriolized, and of the highest grade and purity. The best Super-Phosphate for Wheat. Practical tests by farmers for several years give entire satisfaction.

**GOOD FOR ALL CROPS. Also,**

## No. 1 DISSOLVED RAW BONE.

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NONPAREIL CIDER VINEGAR.

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